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The American Practitioner

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

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CONTENTS

ORIGINAL ARTICLES

Further Observations upon Hernia— Studies in Special Forms. By ROYALE H. FOWLER, M.D., Brooklyn.....	1
The Significance of the Abderhalden Reaction for Psychiatry. By BAYARD HOLMES, M.D., Chicago.....	20
Arterial Hypertension, with Especial Reference to Treatment. By SIDNEY J. MEYERS, M.D., Louisville.....	29
Where the Cystoscope is Replacing the Knife in Urology. By J. BAYARD CLARK, M.D., New York.....	38
Diathesis	41

EDITORIALS

The Salts of Calcium.....	42
A Résumé of Various Treatments with Emetine	44
Tetanus and Vaccination.....	47
Mathematics and Digestion.....	50
Sterilization of Instruments.....	50

DIGEST OF CURRENT MEDICAL LITERATURE

Internal Use of Liquid Paraffin.....	51
Activity and Stability of Tincture of Digitalis	52
Oxytoxic Remedies	52

(Contents continued on page viii)



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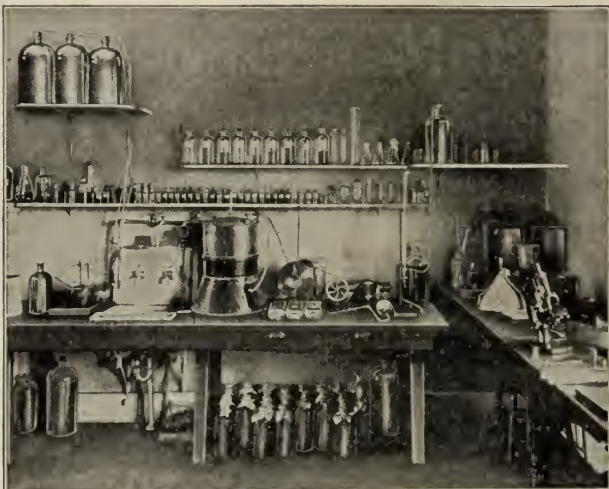
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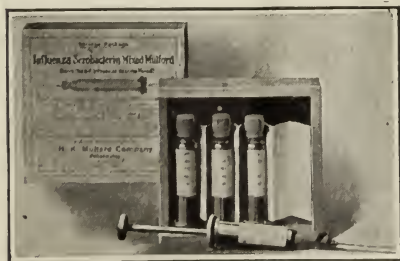
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CONTENTS—Continued

Modern Treatment of Fractures.....	53
Food Requirements of Infants.....	53
Diphtheria Prophylaxis in Infants....	54
Hereditary Syphilis	54
Shock	55
Glands of Internal Secretion.....	55
Cause of Blindness.....	55
Curable Tabes	56
Acute Thyroiditis as a Complication of Actual Tonsilitis	56
Use of Extract of Hypophysis in Obstetrics	56

THERAPEUTIC PROGRESS

Lipoiod'n-Ciba, Veratrone in Eclampsia,
Neosalvarsan, Aspirin in Treatment

of Asthma, Lecutyl in Tuberculosis of the Bladder, Urotropin in Acute Affections of the Lungs, Bacterial Action of Ethylhydrocuprein on Bacillus Mucous Ozoenae, Peristaltin in Laparotomies57-58

MISCELLANEOUS

Antiseptics and Germicides.....	59
Oatmeal Diet for Children.....	59
Hystero-Anemic with Morbid Appetite.	59

BOOK REVIEWS

Infection and Resistance. By HANS ZINSSER, M.D.....	60
A Textbook for Midwives. By JOHN S. FAIRBAIRN, M.A.....	60

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The American Practitioner

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Vol. XLIX

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No. 1

ORIGINAL ARTICLES

FURTHER OBSERVATIONS UPON HERNIA— STUDIES IN SPECIAL FORMS*

By ROYALE H. FOWLER, M.D.

Brooklyn, N. Y.

The study includes 41 cases of inguinal hernia, 3 cases of umbilical hernia, 4 cases of postoperative incisional hernia, 1 femoral and 1 diaphragmatic hernia.

INGUINAL HERNIA

Thirty one were reducible and 10 irreducible. Of the latter, 1 was incarcerated, 2 were inflamed and 7 were strangulated. Three occurred in females. Twenty nine were indirect, 19 were thought to be congenital. Eight occurred in children under twelve years of age. Twenty three were on the right side.

The sac at the time of operation was empty in 25 cases. Four sacs contained omentum, one omentum and small intestine. Ten sacs contained the intestine. One case was a hernia of the bladder.

Hernia of the bladder occurred in the person of A. H., male, referred to the German Hospital by Dr. J. W. Mock and admitted November 3, 1910. The character of the hernia was not determined before operation. There were no bladder symptoms. At operation a direct hernia was recognized. The bladder wall was turned in by means of two purse strings and the opening in the conjoined tendon sutured. Perfect end result when examined a year later.

Of the enteroceles, three were partial, the so called Richter type.

*This paper is based upon a critical analysis of the last fifty consecutive cases of hernia studied and operated upon by the writer, with few exceptions, in the surgical clinics of Dr. Russell S. Fowler at the German and Methodist Episcopal Hospitals and of Dr. J. Bion Bogart at the Kings County Hospital. The writer gratefully acknowledges the courtesies extended him.

Seven sacs contained the small intestine. One sac contained the Appendix, one the Cecum, one the Cecum and Appendix.

Case I.—Hernia of the Cecum. Mr. G. T., a Swede of fifty eight years, was admitted to the German Hospital on December 7, 1910. Eighteen years previously he noticed a swelling in the right inguinal region, which disappeared upon pressure and upon assuming a reclining position, until five days before admission. He had worn a truss for five or six years, but not since he had found it impossible to reduce the swelling. The bowels were regular; there was no pain or vomiting. Upon examination a right, indirect, irreducible inguinal hernia was recognized; contents of sac uncertain. The swelling was soft, not tender, and occupied the inguinal canal. Upon opening the hernial sac a small amount of cloudy yellow fluid escaped, the odor of the colon, and a pseudodiverticulum of the outer saccule of the cecum was exposed (see Fig. 1). This formed a nipple-like pouch one and one half inches

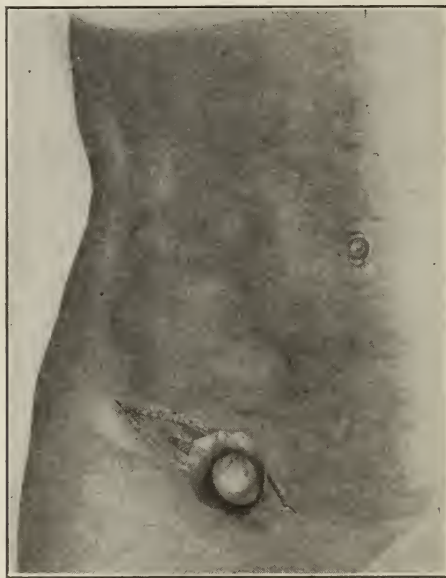


FIG. 1. RICHTER HERNIA OF CECUM

long, was broader at the base, constricted at this point, and gangrenous throughout its entire extent. The pouch had the appearance of having been drawn out. Less than one half the bowel circumference was strangulated. The writer excised the gangrenous portion of the Cecum, sutured the opening, and closed the wound by the Bassini method. The patient made an uneventful recovery and was discharged in eighteen days. Final examination revealed a firm, sound scar, without evidence of bulging.

Case II.—Hernia of the Appendix. Mr. V. P., aged twenty five, was admitted to the Methodist Episcopal Hospital, November 22, 1910. Diagnosis, right oblique inguinal hernia. The tip of the appendix was found in the

sac, presenting at the internal ring (see Fig. 2). It was firmly adherent and could not be entirely brought out of the abdomen. It was freed in such a manner as not to endanger its nutrition, and dropped back into the abdomen. Excision, had it been possible, would have been the treatment of choice. The Bassini operation completed the procedure.

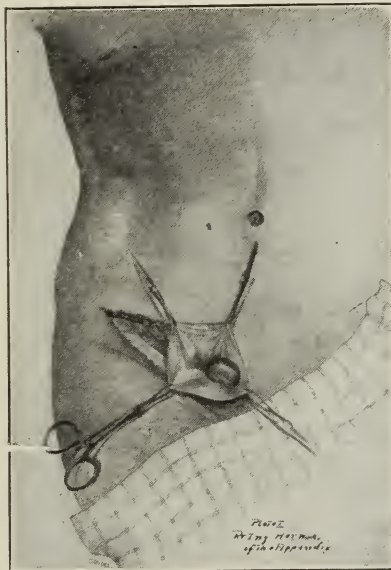


FIG. 2. HERNIA OF APPENDIX

Case III.—Hernia of the Cecum and Appendix, Appendicitis, Diffuse Septic Peritonitis. A. A., aged eighteen months, was admitted to the Kings County Hospital, October 30, 1914. Twentyfour hours before admission a swelling, which had existed previously from time to time in the right side of the scrotum, was observed to become persistent, red and tender. Patient vomited about one hour after the hernia came down. Efforts to move the bowels were unsuccessful from the onset.

Parents stated that operation was refused some time ago, when the child was taken to a hospital for that purpose.

Physical examination: Patient is a fairly well nourished child about one and one half years old, appears acutely ill and in shock. Respirations are rapid and child seems very weak. The skin is pale and the mucous membranes are cyanotic. Head, ears, eyes, nose and neck negative. Thorax: Lungs clear. Heart: Very rapid, 140 per minute. Abdomen: Slightly distended. There is swelling in the right side of the scrotum the size of a lemon, of doughy consistency, irreducible and inflamed.

Operation: Usual incision for inguinal hernia. Upon opening the sac there was a gush of thin yellow pus, odor of colon. The sac contained the Cecum, the Appendix and about two inches of the terminal Ileum. They were adherent by plastic exudate. The appendix was attached to the posterior cecal wall. The entire gut was covered with purulent exudate. The Appendix was

excised. After reducing the incarcerated bowels there was a gush of thin purulent material from the abdominal cavity. A double rubber tube drain was inserted into the internal ring, the superficial wound packed with gauze and dressings applied. During and after operation the patient's trunk was elevated. Death in four hours from peritoneal shock and sepsis.

HERNIA OF THE CECUM AND APPENDIX

The occurrence of hernia of the Appendix and Cecum, together or singly, is not so rare as to constitute a surgical curiosity, but it is sufficiently uncommon to warrant discussion.

Bennet has encountered nine instances of hernia of the Cecum in 565 cases of strangulated hernia at St. George's Hospital, London. Brunner has seen hernia of the Cecum in 2.3 per cent. of 417 cases of hernia. Coley, on the other hand, has found hernia of the Cecum in less than 1 per cent. in 2,200 hernia operations. In his experience, he has seen hernia of the Appendix in less than 5 per cent., hernia of the Cecum and Appendix together in less than 1.3 per cent.

Carnett has contributed a very valuable article upon "Inguinal Hernia of the Cecum," and cites the combined statistics of Hildebrand and Gibbon. These observers collected 139 and 63 cases, respectively, of hernia of the Cecum, some of which are duplicated, making a total of 196 cases. Of these, 83.6 per cent. were inguinal, 10.7 per cent. femoral, 5.7 per cent. umbilical. In 164 cases of inguinal hernia of the Cecum, the hernia was found upon the right side in 78 per cent., upon the left in 15.2 per cent., side not stated in 6.8 per cent. In 21 cases of femoral hernia of the Cecum, the hernia was found upon the right side in 85.7 per cent., upon the left in 9.5 per cent., side unstated in 4.8 per cent.

Inguinal hernia of the Cecum is found at all ages, usually at the extremes of life. Of Hildebrand's 80 cases, 12 were under one year, 2 occurred in fetuses at the eighth month. Gibbon has reported 63 cases of cecal hernia, and of these 44 per cent. were strangulated.

De Garmo reported in 1908, 21 cases of hernia of the Appendix in a series of 1,600 operations for hernia. In 3 cases its presence was suspected before operation by palpation through the tissues. Critical analysis, however, reduces this number to 17. Case V had suffered from three attacks of Appendicitis, so the Appendix was pulled down through the internal ring. It was, therefore, not a true protrusion. Case XVI is under suspicion in that it is stated that "the appendix was brought out." Case XVII. Symptoms of Appendicitis. "It was desirable to see the Appendix," extension upward of fibers of the internal oblique. Appendix brought outside ligated and removed. "Case XXI. Appendiceal stump adherent

to inner aspect of anterior abdominal wall at site of incisional hernia following appendectomy.

In De Garmo's series of 17 cases, all were on the right side, 16 were inguinal, one femoral. In 12 cases the Appendix alone was the occupant of the sac, in 4 the Cecum and Appendix together, and in 1 the Cecum alone.

Protrusion of the Appendix in femoral hernias are seen most frequently in women. A. C. Wood has collected 100 cases recorded up to 1906, of which 81 were in females.

In regard to the presence of inflamed appendices contained in hernial sacs, it is interesting to note that the first authentic case of appendectomy performed upon the human subject occurred in such a case, and that the organ contained a pin.

On December 6, 1735, Claudius Amyand operated upon a boy of eleven years for the cure of a discharging sinus in the right thigh, which communicated with an irreducible scrotal hernia. Hernia had existed from infancy, and for one month there had been a discharge from this fistula. It was evident that the cure of the sinus depended upon that of the hernia. "This operation," to quote Amyand, "proved complicating and perplexing, many unsuspected oddities and events occurring to make it as intricate as it proved laborious and difficult." The hernia was found to be chiefly omental, "the size of a small pippin." "In its interior lay the appendix ceci, which had been perforated by the point of a pin. The head, covered with much encrusted stone, remained within the appendix, acting as a ball valve and allowing at the most unexpected and inopportune moments a copious discharge of fecal matter over the field of operation."

An interesting case of Suppurative Appendicitis occurring in an infantile hernia is recorded by Macewen, the younger.

A man, aged twenty five years, was admitted to the Elder Cottage Hospital, Govan, in May, 1905, complaining of a swelling in the right scrotum, which he first noticed a few days previously, his attention having been directed to the part by a sensation of something slowly giving way when lifting a heavy weight. On examination, a firm, rounded swelling of about the size of a walnut was found situated just above the testicle and connected with it. This swelling was opaque to transmitted light and was not markedly tender to pressure. The vas could not be satisfactorily isolated, as a thick cord ran up from the mass just described into the abdomen through the inguinal canal. There was no impulse on coughing. A large and rather prominent scar over the inguinal region and upper portion of the scrotum attracted attention, and the patient explained that this was left by an operation for rupture which he underwent when an infant. As the condition was causing the patient trouble and unfitted him for work, operation was decided on.

Operation: An incision as for the radical cure of hernia was made and the parts were exposed. The mass which had been felt on examination was found to consist of matted omentum; after adhesions were separated, the Vermiform Appendix was found within it. The Appendix extended from the internal ring to the testicle. It was curled on itself toward the tip and

was firmly adherent at this part to the upper portion of the testicle. This adhesion to the testicle was dense and avascular. The Appendix, having been detached from its adhesions to the testicle, was next freed from some slighter adhesions to the inguinal canal, and then on applying gentle traction and using the finger as a hook the lower end of the Cecum came into view. Appendectomy was then performed and the stump was umbilicated by a circular suture, after which the bowel was returned into the abdomen. Having removed the protruding portion of matted omentum, the operation was completed by performing the final stage of the radical cure for hernia (Macewen's operation). A mattress suture was passed through the conjoined tendon, its free ends were passed through Poupart's ligament, so that by tightening and tying the ends together the conjoined tendon was pulled down behind Poupart's ligament, thus obliterating the canal. The patient made an uninterrupted recovery, the wound healing aseptically. The patient resumed work a couple of months later and is now (January, 1906, seven months later) regular at work, without any recurrence of the hernia.

Mr. Macewen further remarks in a report sent me:

"Judging from what was found at the operation, it would appear that the appendix in this case had long occupied the inguinal canal and had probably become attached to the testicle long previously as the result of some inflammatory process. The absence of any definable hernial sac also would be accounted for by an old inflammatory process. The recent sensation of something slowly giving way and the subsequent swelling I attribute to the slipping down into the scrotum of a small portion of omentum.

"Being interested in the condition, I ascertained that the patient had been operated upon for hernia when twenty months old. According to the old record, he had a swelling in the groin from the time he was ten months old. A truss had been worn until the week of admission to hospital, when it was discarded, as the swelling became large and painful and descended into the scrotum. The swelling increased in size until, on admission, it was found to be pear shaped, extending above to the inguinal canal, while the lower portion in the scrotum was hot, red and painful. There was an impulse on coughing, but taxis was not successful. The scrotum was laid open, when pus escaped from the tunica vaginalis. The bowel was returned and the pillars were brought together by a silver stitch, which was removed later. Free drainage was provided and frequent lavage was performed.

"From the description given in these old notes, it appears probable that the patient had a hernia of the Appendix at an early age. When twenty months old, however, a Suppurative Appendicitis occurred, with abscess formation in the scrotum. This abscess was opened by incision into the tunica vaginalis; the bowel was returned to the abdomen, while the appendix, left to drain through the open wound, gradually healed up, and contracted the adhesion to the testicle mentioned in the description of the recent operation. This same suppurative process, occurring twenty three years previously, would account for the absence of any definite hernial sac."

A reproduction, illustrating a second case reported by Macewen, is seen in Fig. 3.

A man, aged sixty two years, was sent into Glasgow University Surgical Clinic on February 20th as a case of strangulated hernia. The patient stated

that twelve years previously to admission he had strained himself severely while lifting a sack and that a swelling then appeared in the right inguinal region. This swelling was small, but so painful as to necessitate his taking to bed. Notwithstanding the rest in bed, the swelling increased in size, until a week after the onset it became large, red and tender, after which, how-



FIG. 3

ever, it gradually subsided. The patient was then fitted with a truss, which he continued to wear until recently and which enabled him to perform his work in comparative comfort. Two weeks prior to admission he began to suffer considerable discomfort, which he at first attributed to the truss. The discomfort, however, increased, notwithstanding rest in bed, and gave place to pain. Three days prior to admission he took a dose of salts, which acted very thoroughly, and as the pain continued to increase, he finally sought admission to the infirmary.

On examination the patient looked older than his age, and suffered from bronchitis and defective circulation. He was found to have a large pyriform swelling affecting the right inguinal region and scrotum. The scrotal tissue was much inflamed. The testicle appeared to be fused with a mass which was fairly firm in consistency and dull to percussion. The swelling, although movable, was not reducible. No impulse on coughing was elicited. The temperature on admission was 98.8 F. and the pulse 68.

An incision as for the radical cure of hernia was made and the mass was exposed. It was found to consist externally of a thick layer of matted omental like tissue, which was greatly congested and presented a dark purple, mottled appearance. This sac was much inflamed and was bound below by inflammatory adhesions to the testicle, which was also much inflamed. The sac, having been opened, was found to contain a second sac, composed of thick, dense, fibrous tissue, of globular shape, which when traced upward toward the inguinal canal was seen to be continuous above with normal peritoneum. At the junction of thickened fibrous sac with normal peritoneum there was a slight constriction. This inner fibrous sac, having been freed from inflammatory adhesions and thoroughly exposed, was next incised and opened and was found to contain a considerably thickened and much inflamed Vermiform Appendix. The Appendix not coming readily out of the sac, and something hard, like a piece of wire, being felt inside, the sac was incised along its anterior surface to the base and opened up. It was now found that the Appendix was held in position by a pin, the point and about half the shaft of which projected through a small ulcerated aperture in the wall of the appendix. The pin was directed upward and engaged at the point in the thick, fibrous sac, which was also slightly ulcerated at the point of penetration. The point of the pin having been disengaged from the sac, the appendix was freed from some slight adhesions and lifted out. Then, on applying slight traction, the colon, which had occupied the upper portion of the sac composed of normal peritoneum, was brought into view. Appendectomy was then performed in the usual manner. As the colon and all the surrounding parts were markedly inflamed, it was decided not to proceed with the radical operation for the cure of hernia. The bowel having been returned to the abdomen, the inner fibrous sac already referred to, which contained the appendix, was removed, after which the outer, thick, omental like sac was ligatured, freed from the testicle, and likewise removed. The wound was then stitched up. The patient made an uninterrupted recovery.

REMARKS UPON PARTIAL ENTEROCELE

The first case, that of strangulated hernia of the Cecum above reported by the writer, again deserves special mention in that it was the Richter type.

Richter's hernia may be defined as an abdominal hernia, in which a portion of the circumference of the bowel is imprisoned, reducing but not entirely obliterating the lumen of the intestine. This hernia is far from being a common condition. Textbooks upon general surgery devote but little space to this form of hernia, and yet it is

one with a high mortality which could be lowered with prompt treatment.

The French bestow credit upon Littré for proper comprehension of the subject. In 1700 he described "A New Form of Hernia," but the cases reported were instances of hernia of Meckel's diverticulum. Johannes Meckel, a century later, showed that Littré's cases were strangulated hernias of the diverticulum which bear Meckel's name. It was not until 1778 that the hernia under consideration was described in its clinical and pathologic aspects, and to Gottlieb Richter the honor is due. He termed it "small rupture."

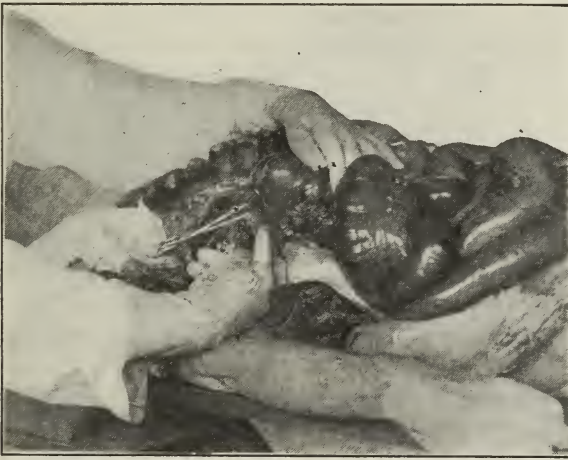


FIG. 4. RIGHT SIDE OF CHEST HAS BEEN REMOVED

Richter's hernia is more common in females than in males, is apparently limited to adults, and the majority occur in the fifth decade. The lower Ileum is the portion of intestine which is most liable to become engaged. Cases involving the jejunum and colon have been reported. The constricted portion may represent one third to four fifths of the intestinal circumference. In some cases the lumen may permit fecal passage, while in others only a probe may be passed through the constriction. This form of hernia is more frequently found in the femoral than the inguinal region, but the gut may be nipped in any situation in which hernia occurs. It has been observed in epigastric hernia and at the obturator foramen. It is more common on the right side than on the left.

In respect to the mode of origin of this condition, old hernias give rise to this lesion more frequently than recent ones. Authentic

knowledge is lacking in regard to the formation. An adhesion may take place between the sac and a portion of the intestine. The apex of the cone cannot escape, and becomes strangulated at the inguinal ring. In many cases, however, no adhesion has been found at the time of operation. In the case above detailed, it would seem that the patient had worn a truss when the hernia was not completely reduced; that a portion of the Cecum was pressed upon by it, and that a traction pseudodiverticulum resulted.

It is largely through the excellent paper of Treves that the writer is enabled to present the clinical features of this condition. The symptoms are unreliable and present little uniformity. The gravity of the case depends upon the condition of the bowel, and there are no symptoms to serve as an index of intestinal viability. These cases have symptoms suggestive of intestinal obstruction. In one third, the symptoms are typical of this condition. In the remainder, the symptoms are much less severe, and are those of a mild, incomplete obstruction. In one tenth of the less severe cases there were bowel movements on the first or second day. The vomiting is of mild and intermittent type. Fecal vomiting is present in about 12 per cent. of the cases; in the earliest on the second day, in the latest cases, on the eighth day. The bowel may be in a gangrenous condition without the existence of fecal vomiting. In the author's case there was no vomiting. Complete obstruction is not unusual. It is well to remember in this connection the experiments of Scarpa, that if more than two thirds of the bowel circumference is encroached upon, the passage of water through the intestine is arrested by angulation of the intestine. Constipation is a constant symptom. Diarrhea, however, has been present, and is a bad omen. Obstipation is the general rule. Distention of the abdomen is not marked.

The clinical diagnosis is difficult, and has been made in about 50 per cent. of cases. In half of the cases no external swelling was discovered. When it is determined by palpation it presents the character of an irreducible hernia. The condition simulates a small incarcerated omental hernia. The mortality is high; all those cases died which were not recognized during life. Treves places the mortality at 62.2 per cent.*

Operation. In the series of 41 cases of inguinal hernia, the operation of choice was the typical Bassini. This performed in 30 cases. In one case, hernia of the Cecum and Appendix complicated by Appendicitis and Septic Peritonitis, the wound was left open for tube drainage. The modified Bassini was done without transplanting the cord in nine cases. In one case of partial enterocele, diagnosed

clinically as intestinal obstruction, the strangulated bowel was disengaged from within. No attempt was made to repair the hernia, on account of the desperate condition of the patient. In the other six cases of strangulated hernia, intestinal resection was performed twice (one Murphy button anastomosis), enterostomy once.

Healing. Thirty two cases healed by primary union. There were five superficial infections and one deep infection. (Three cases died.)

UMBILICAL HERNIA

Three cases, two in adults (one male and one female), one in a child (female). Two were irreducible. In these the sac in each case contained the omentum and small intestine. Mayo operation was performed twice, the Blake once.

POSTOPERATIVE INCISIONAL HERNIA

Four cases occurred following operation for appendicitis. The previous incision in all cases was the McBurney or the Fowler modification, the operation having been performed for Diffuse Septic Peritonitis. Protracted drainage had, therefore, been required. One case occurred in a child, three in adults. Following plastic repair, all healed by primary union and have remained cured.

REMARKS UPON TREATMENT*

Small incisional hernias may be treated by inversion of the sac without opening the peritoneal cavity. The advantage of this lies in the facts, that it removes the procedure from the category of laparotomy; that the inverted sac strengthens a weak point similar to MacEwen's operation for inguinal hernia, in which the sac is puckered up to form a pad; that no time is wasted in separating adherent coils of intestine, if they are present from the scar. This would seem to be an important argument in its favor. A disadvantage in extraperitoneal treatment by inversion lies in the fact that one does not know whether adherent coils are present or not. In the event of their presence, the adhesion between the inverted pouch and the intestine would become lengthened. In case of a large sac which had been inverted, there would appear to be danger of intestinal obstruction through the creation of a false peritoneal ligament.

*Part of discussion of paper by Dr. Irving S. Haynes, "Treatment of Large Ventral Hernia by Inversion of the Sac," read before the Medical Society of the State of New York, at Rochester, May 1, 1912.

In 1836 Gerdy reported two cases of ventral hernia, which he treated successfully by inverting the entire hernia, skin and all, into the abdomen. He produced adhesions between the inverted cu-



FIG. 5

taneous surfaces by ammonia, sutured together the margins of the sac, and obtained firm union in seven or eight days.

In 1872 and 1876 Simon, employing the same principle, treated two cases by inversion, having previously denuded the skin over the margin of the hernial aperture. The raw surfaces were apposed



FIG. 6. RIGHT SIDE OF CHEST HAS BEEN REMOVED

by three rows of sutures. Good results were obtained in both cases.

Hegar, in 1879, still further modified the operation by making the cutaneous denudation of horseshoe form. Jeffremvosky, Hoffa and Mass employed this technic.

Ballandin, instead of limiting denudation to the skin, attempted

to still further improve Simon's method by deepening to the substance of the muscle.

In 1887 Wm. Polk, in the discussion of W. Gill Wylie's paper upon ventral hernia read before the N. Y. Obstetrical Society, stated: "It ought to be possible to unite the fascia without opening the peritoneal cavity."

It seems that Chrobak, the same year, made the first systematic attempt to carry out this idea. He did not succeed, but punched the peritoneum full of holes.

In December, 1890, G. M. Edebohls operated for the radical cure of a ventral hernia, 10 by 5 cm., by dissecting the layers of the hernia from the peritoneum practically without opening the abdominal cavity, inverted the peritoneal pouch and brought together the margins of the Recti muscles, fascia and skin. The following year, in a paper entitled "Ventral Hernia, with a Plea for Extraperitoneal Operation," he set forth the advantages of this procedure. This was considered by him the first recorded case in which the sac of a ventral hernia had been treated extraperitoneally and inverted.

It is of interest to note in this connection that one case included in the preceding series of ventral hernia was operated upon by the writer at the same time for a right indirect, reducible inguinal hernia.

Mr. A. H., aged twenty three, clerk, was operated upon for acute appendicitis in February, 1907. The McBurney incision was made. Wound drained. A ventral hernia followed. In 1908 the patient first observed a swelling in the right inguinal region. In March, 1911, the writer repaired by plastic operation the ventral hernia in the appendix scar without opening the peritoneum, sac treated by inversion, and repaired the inguinal hernia by the Bassini method. Healing took place by primary union. Patient was examined nine months later, when both inguinal and ventral scars were firm and without signs of bulging.

The consideration of a possible relationship between the operation for appendicitis and the development of right inguinal hernia has not been frequently discussed in recent textbooks.

Pond reported a case in 1910 which had come under his observation.

In November, 1910, Hogue, who studied 190 cases of right inguinal hernia at St. Luke's Hospital, occurring in the service of Drs. Robert Abbe and C. L. Libson, found that there was an antecedent history of appendectomy in 8 cases.

More recently, Balfour, in analyzing 795 cases of right inguinal hernia occurring at the Mayo clinic from 1907-1912, found that 17 had been operated upon for Appendicitis through the McBurney

incision. Sixteen were of the oblique variety and 16 occurred in males. The period between the operation and the hernia varied from one month to seven years. Seven occurred in a year or less. The reason for the development of this condition may be traced to injury of the nerve supply of the muscles forming the inguinal canal. The muscles of this region receive their innervation from the iliohypogastric and ilioinguinal branches of the first lumbar nerve. These branches are subject to considerable variation from the normal course and may be injured: (1) By direct section at the time of operation in case of a low incision. (2) Through pressure of the



FIG. 7. SAC OPENED

retractor. (3) As the result of pressure from a drain or infection of the abdominal wall. Such injury would be responsible for relaxation and atrophy of the muscles in the region under consideration. The ilioinguinal nerve is not so liable to injury as is the iliohypogastric.

Cases of right inguinal hernia developing after the lapse of one year following appendectomy must for the most part be excluded from this consideration as showing no relationship, for the reason that about 90 per cent. of cases of recurrent inguinal hernia and postoperative hernia develop within the first twelve months following operation.

These conclusions may be drawn: (1) It is not possible to assume that a right inguinal hernia occurring after operation for appendicitis is a true acquired hernia and the direct result of a trauma to the nerves supplying the inguinal region concerned in hernia. This injury may merely emphasize a preexisting sac.

(2) A certain number of cases, those in which the interval is long, are probably coincidences.

(3) A low abdominal incision which injures the nerves under consideration may be followed by right inguinal hernia.

(4) Injury is usually dependent upon the use of a drain and infection of the abdominal wall. It has been observed most frequently following the McBurney incision.

(5) The presence of a preexisting latent sac must be considered as a predisposing factor.

The following table shows the interval between appendectomy and the appearance of the right inguinal hernia in a series of 29 cases (Balfour, Hoguet, Fowler) :

Under one month.....	3
One month.....	3
Three to six months.....	4
Six months to one year.....	5
One to two years.....	3
Two to three years.....	3
Three to four years.....	1
Four to five years.....	2
Five to six years.....	2
Six to seven years.....	3

FEMORAL HERNIA

One case occurred in a male child. Bassini operation. Healed by primary union.

INTERNAL HERNIA

In addition to those cases of partial enterocele which may be properly grouped in this class, a case of diaphragmatic hernia was observed. This hernia is very rare upon the right side.

J. W., aged fifty three, native of Ireland, was admitted to Kings County Hospital, service of Dr. J. Bion Bogart, October 10, 1913, from Long Island State Hospital. The patient was unable to give any account of illness, because of deafness and defective mentality. Communication with the hospital authorities revealed the facts that the patient suddenly complained of pain in the abdomen four days previously and was put to bed. He told the doctor in charge his bowels had not moved in four days. He had vomited several times daily since onset. Pain became more intense. Enemas and even croton oil had failed to produce a bowel movement. Vomiting was not fecal. Temperature did not rise above 100.5.

Physical examination: Well developed man, extremely deaf, and difficult to question. Both eyes show interstitial Keratitis. Impossible to see pupils. Teeth very poor.

Chest: Expansion fair and equal. Resonance good, front and back. Breath Sounds bronchovesicular, few coarse rales heard.

Heart Sounds poor quality, no murmurs. Blood pressure, Systolic, 130; Diastolic, 100.

Abdomen: Distended, not rigid, little edema of abdominal wall. Tympanic all over. Pressure over the abdomen cause little pain. Liver and spleen not palpable.

Extremities negative.

Notes: October 10 (on admission). Abdomen greatly distended. Patient very noisy, vomited light green, sour smelling material. One P.M., vomiting continues every ten or fifteen minutes. Complains of severe pain after vomiting. Small amount of flatus expelled. Three P.M., no result from compound enema. Severe thirst. Four P.M., face flushed, body surface moist and warm. Total fluids for day, tea, milk and water, 22 ounces.

Urine, October 10: Alkaline, 1.018; no albumen or sugar.

Blood: 19,720 leucocytes, 86 per cent. polynuclears, 13 per cent. large and small mononuclears, 1 per cent. transitionals.

Temperature record, October 10, 100 2/5, Pulse 120, Respirations 24.

October 11: Pulse 84 to 100.

October 12: Temperature 101, Pulse 100. Thereafter until death temperature slightly above 99. Pulse between 90 and 100; just before death, 110.

October 11, 8 A.M.: Slept at intervals during the night, somewhat restless; pulse regular, fair volume. Abdomen still distended. 11 A.M.: Takes nourishment well. 4 P.M.: Retains nourishment. 7 P.M.: Small amount feces and flatus from enema, unable to retain enemas, three involuntary evacuations. Total fluids, 46 ounces retained without vomiting.

October 12, 10.15 A.M.: Three grains of calomel given. 1 P.M.: Vomited small amount green fluid. Total fluids, 40 ounces. 9 P.M.: Patient tossing about, noisy. 9.55 P.M.: Morph. Sulph.

October 13, 8 A.M.: Face pale, appears weak. 10.30: Vomited three ounces brown fluid without fecal odor. 11: Small amount flatus expelled with enema. Two involuntary evacuations during the night. 11.25: Compound enema, return a small amount of fecal matter and flatus. Total fluids, 26 ounces.

Notes by interne: Vomiting more frequent since admission and without effort. Calls out at times, as though in considerable pain. Abdomen more distended. No rigidity. Incontinence of urine. Rectal examination shows external hemorrhoids, but no obstruction felt low down. Prostate small.

October 14, 8 A.M.: Complains of severe headache and abdominal pain. Abdomen remains markedly distended. 10.30: Vomited three ounces of brown fluid. 4 P.M.: One ounce of castor oil. Total fluids, 37 ounces.

October 15, 8 A.M.: Face pale, lips dry, pulse irregular, rapid. Abdomen very tense, irrational. 9.30: Vomited four ounces of curded milk. 10: Vomited a large amount of thick, brown fluid, fecal odor. 11: Lavage. Ice only. High colonic irrigation resulted in return of small amount of feces and flatus. 12: Patient appears weaker, noisy. 2 P.M.: Expired.

Autopsy record: The body is that of a well developed white male, past middle age. The hair of the head is scanty, dark in color and sprinkled with gray. The corneae of both eyeballs are opaque. The left eyeball is collapsed. The skin of the abdomen is somewhat greenish in color, due to postmortem discoloration. There is a large discolored area of skin over the radiocarpal

articulation. There is marked reddish postmortem discoloration over the dependent parts, except where the body has been in contact with a supporting surface.

On opening the abdomen subcutaneous fat is found to be increased in amount. It measures about 1.5 cm. in thickness. It is of a yellowish color. Great omentum not seen on opening abdominal cavity.

The intestines are greatly distended and covered with a plastic exudate. The blood vessels in the parietal peritoneum are distinctly injected. The parietal peritoneum on the right side, four fingers breadth below the umbilicus, shows a triangular patch of plastic exudate, which measures $2\frac{1}{2} \times 1$ cm. This patch corresponds to a similar one present in a loop of the small in-

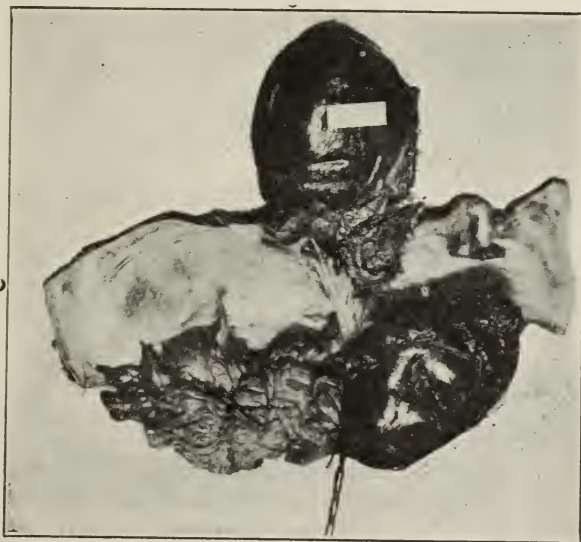


FIG. 8. SHOWING THE HERNIAL CONTENTS REMOVED AND SUSPENDED ABOVE

testines. The parietal peritoneum was broken away without much difficulty from this patch.

The large intestine was found to be tremendously dilated. It was traced upward to the diaphragm, where it seemed to be constricted. The intestines in the pelvic region were gangrenous and at several places perforations had occurred. Fecal matter was found in the pelvis and also near the spleen. Small and large intestines show postmortem changes. Both are enormously dilated, the small throughout, the large to the middle of the transverse colon. In the Cecum are small ulcers averaging a half inch in width. They seem to be limited to the mucosa. There are multiple perforations in the sigmoid.

Spleen: Weight 117 gm. The spleen was of a slate green color, due to postmortem change. The capsule was wrinkled. The lower pole of the spleen was notched. There were two notches, forming a small lobule about $2\frac{1}{2} \times 2$ cm. The Malpighian corpuscles were visible. The trabeculae were slightly increased.

The left and right adrenals appeared to be undergoing decomposition.

Left kidney weighed 217 gm. and was reddish brown in color. The capsule was stripped with some difficulty and left a fairly smooth surface. On section the kidney parenchyma was rather lighter in color than normal. The cortex appeared normal in width. The markings were slightly indistinct. The pyramids were not as prominent as usual.

Right kidney weighed 217 gm. The color resembled that of the left kidney.

The bladder was contracted. It contained about 20 c.c. of cloudy, turbid urine. The rugae were marked.

On section the prostate appeared firm, and in the right lobe were found a collection of small black stones.

Rectum appeared normal, except for hemorrhoids at the anal opening.

Gall bladder was tinged with green and contained no stones.

Liver: Weight 1637 grams, dark slate green in color, due to postmortem changes. On section this extended $\frac{3}{4}$ cm. beneath the capsule. The rest of the cut surface was a reddish brown. Parenchyma appeared normal, except for a few areas of fatty degeneration. Lobules were not distinct. There was congestion.

Pancreas: Weight 156 grams. It was firm and appeared normal on section, except for slight interstitial changes.

The diaphragm reached to the fifth rib on the right side, and to the sixth rib on the left side.

On opening the thoracic cavity a sac, which contained the intestines, was found.

A diaphragmatic hernia had been produced about 1 cm. below and to the right of the ensiform cartilage. On opening the hernial sac, apparently lined by peritoneum, it was found to contain the great omentum and about 20 cm. of the transverse colon. Omentum contained much fat and appeared normal. The intestinal loop was easily moved backward and forward through the hernial opening, but no attempt was made to pull all of the loop through. The under surface of the sternum was normal. The thymus was apparently replaced by fatty and connective tissue. The lung was bound by adhesions, which were broken through with difficulty. The pleural cavity contained no fluid.

Heart: Weight 420 gm. The heart was about the size of the right fist. The pericardial fat was slightly increased, especially along the course of the coronary veins. The tricuspid valve measured 13.5 cm., and appeared normal. The pulmonary valve measured 8.5 cm., and was likewise normal. The mitral valve measured 10 cm., and showed marked areas of sclerosis. The aortic valve measured 8 cm. The corpora arantia were calcified, while just above the valve there were numerous areas of atheroma. One patch measured 2.5 cm. The latter showed calcification. The right ventricle averaged 0.5 cm. in thickness, the left ventricle 1.5 cm. The myocardium was rather pale, and showed linear streaks of a yellowish hue, probably due to the interstitial changes. Both coronaries showed thickening and diffuse atheroma.

Left lung: Weight 586 gm. This lung floated in water. It was a dark, dusky color. The bronchus showed injection. The pulmonary artery appeared normal. The lung seemed to be air containing throughout. On section it was found congested, but only slightly edematous. The lower lobe

was the seat of a more marked congestion. There were no evidences of pneumonia or Tuberculosis.

Right lung: Weight 836 grams, floated in water. The bronchus was congested. The pulmonary artery contained fluid blood, no thrombi. The pleura was thickened. There were numerous adhesions between all the lobes, which were broken up with some difficulty. The lung crepitated throughout and on section showed the same appearance as the left, except for the presence of more edema in the upper lobe. No evidence of Pneumonia or Tuberculosis.

Aorta: Marked atheroma.

Brain: Calvarium thicker than normal, dura adherent to pia, especially in the region of the posterior fontanelle. Excessive fluid at the base. White substance paler than normal. Atheroma of the vessels at the base, especially the basillar artery.

Anatomic diagnosis: (1) Hernia through the diaphragm, right side at the site of Larrey's space. (2) Diffuse Peritonitis of the lower abdomen, multiple perforations of the Sigmoid, gangrene of the small intestine. Ulcers of the Cecum. Plastic peritonitis of the upper abdomen. (3) Adhesive pleuritis, pulmonary edema. (4) Chronic Myocarditis. (5) Chronic parenchymatous nephritis. (6) Prostatic calculi. (7) Chronic endocarditis of the aortic valve. (8) Aortitis. (9) Double corneal opacity. (10) External Hemorrhoids.

For an excellent consideration of the subject of Diaphragmatic Hernia, readers are referred to the monograph of Dr. Karl Max Vogel.

Mortality. Forty nine cases in the series above reported by the writer were subjected to operation. There were five deaths. One is noted in a case of incarcerated cecal and appendicular hernia with Appendicitis and Diffuse Peritonitis. This occurred in a child whose parents had desired operation at an earlier age because of a large scrotal hernia, but which for some reason was refused. If the tender age of the patient were the only reason for refusal, this case presents a forceful argument for early operation. We have recently operated upon an infant several days old for a large scrotal hernia, with recovery.

Two deaths occurred in the series of seven strangulated hernias. These were partial enteroceles. The diagnosis was intestinal obstruction. They were advanced at the time of operation. The two cases in which intestinal excision was performed recovered. Murphy button was used in one.

There were two deaths in the series of umbilical hernia. Both were incarcerated. Both were very obese subjects. One died of postoperative pneumonia on the second day, one in the course of operation, under ether anesthesia, apparently as the result of respiratory paralysis.

BIBLIOGRAPHY

Bennett, *Med.-Chir. Trans.*, London, 1890.

- Coley, *Hernia Prog. Med.*, June, 1910.
Carnett, *Annals of Surgery*, April, 1909.
Gibbon, *Jour. A. M. A.*, June 11, 1898.
Fowler, "Foreign Body Appendicitis," *Annals of Surgery*, September, 1910.
De Garmo, *Postgraduate*, August, 1908.
Wood, *Annals of Surgery*, May, 1906.
Pond, *Jour. A. M. A.*, July 2, 1910.
Hoguet, *Annals of Surgery*, November, 1911.
Balfour, *Railway Surgical Journal*, November, 1912, vol. xix, p. 117.
Vogel, *American Journal Medical Sciences*, February, 1913.
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THE SIGNIFICANCE OF THE ABDERHALDEN REACTION FOR PSYCHIATRY*

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Chicago

Let me claim your indulgence in presenting my subject so that I may give you every reason to judge of the value and significance of this recent step in biochemical analysis. In the first instance, you should know, as many of you do know, that my personal interest in psychiatry has come from the standpoint of the patient. Until the last few years the whole subject of psychiatry was not only neglected by me, but it was even repulsive to me. The misfortune of a member of my own family led me to look in every direction for help and light. In the enormous stream of psychiatric literature, I found no gleam of hope until the reports on the defensive ferments and their relation to the blood of the insane began to appear, less than two years ago. The first meager reports led me to study the theory and the methods as set forth in the "Schutzfermente des tierischen Organismus."¹ This book presented one of the most difficult linguistic problems of my life. There were more than twenty important words used frequently in the text for which I could find no English equivalent and could contrive no possible English combination to interpret.

At first the reports of its use seemed to come in very slowly, and they were confined to the weekly medical periodicals. They were brief, incomplete and unsatisfactory, but late in 1913 more extended articles began to appear in the monthly and occasional serials.² When my convictions began to overtake my hopes, I found it necessary to go back many years over the literature and read many compends, hand books, and even monographs on the subjects involved,

*Read at Chicago Neurological Society, November 17, 1914.

especially upon the enzymes and ferments.³⁻⁶ Fortunately, I was not wholly unprepared for this reading, for as a student in 1870 and '80 I had read the controversies between the advocates of a mystical spontaneous generation, led by Bastian,⁷⁻⁹ and the advocates of a rational biogenesis, supported by Tyndall,¹⁰ as they came fresh from the press. As an interne in the Cook County Hospital in 1884-86, I had read Sternberg's "Bacteria"¹¹ and Klein's "Microorganisms and Disease,"¹² and made the first diagnostic cultures from the cases in the wards where I was in charge. My formal introduction to Dr. Christian Fenger was brought about by the fact that in the winter of 1884-85 I was able to show him the first pathogenic microorganisms he had ever seen grown on an artificial media. The first medical German that I ever read was Rosenbach's¹³ monograph on the microbes of suppuration, and my first paper before the Chicago Medical Society was a clinical laboratory research entitled "Secondary Mixed Infection in Typhoid Fever."¹⁴ The struggle between the old humoral pathology that possessed the minds of the medical men of that time and the germ theory of disease was fought out entirely during my early medical life, and I took some part in the struggle myself.

In 1912 the psychiatrists of the United States had for the most part surrendered all mechanistic theories of dementia precox to the mystical neophallicism of Sigmund Freud. It is true the etiology of general paresis had just been put upon a biochemical basis and was receiving tardy acceptance, but the loss of this territory to Freudinism only added to the presumption of these votaries of unreason, who even presumed to invade dermatology and surgery with a cure for acne and the itch by a mental catharsis and by a system of unraveling mental tangles. With the struggles of the medical profession relative to the germ theory of disease and to the establishment of the antiseptic surgical ceremonial all fresh in my memory, with a constant and consuming desire and hope for a solution of the dementia precox problem, I ransacked the literature of chemistry and weighed the evidence offered by the defensive ferment reaction with no unprejudiced bias. The evidence that this search revealed did not stand alone. It was supported by the history and the achievements of the author of the method, by the parallel furnished by the enzymes of the sugar group as previously presented by Emil Fischer,¹⁶⁻¹⁷ by my own limited clinical experience and by the fragmentary pictures of the disease to be found in the medical literature.

There is no chemical group of such vital interest as the albumin group.^{15, 18} Many of the properties of the albumins are so mar-

velous that were they not demonstrable *ad libitum* they would be actually incredible. Our immediate ancestors, perhaps some of them still living, endowed the albumin molecule with a mysterious vital force, a sort of Bergson ghost, an *élan vitale*.¹⁹ While the properties of the albumin molecule have been easily determined in a large degree, its morphology has stood out against all investigation. It is infinitely polymorphic, or if not infinitely, just as good as infinitely.¹⁸ One albumin molecule presents properties and powers so different from the properties and powers of every other known molecule that their contemplation seems both uncanny and chimerical.¹³ The many striking and generic properties that belong to large numbers of albumin molecules allow their study to be carried on in groups, but the specific properties of these associated albumin molecules are so different that they must have crossed comparisons, thus forming series based upon likenesses in various directions. The members of the smallest of these groups manifest the greatest individuality and functional idiosyncrasy.

Take the nucleins, for example.²⁰ They are almost a specific and individual entity, yet the properties of the nucleins derived from yeast are quite different from the properties of the nucleins derived from the thymus gland, and both of these are unlike the properties of the nucleins derived from the salmon milt.

While the laboratories of the world have been for many years engaged in the various problems of biochemistry involved in and about the albumin molecule, the most successful and the most varied researches on this base have been conducted by Emil Fischer, from 1852, and his laboratory workers at Berlin. With his students, he has published a constant stream of observations verging on the molecular morphology and functions of the albumins. Probably you all are familiar with his illuminating work on the purin bodies,²³ which began in the 'eighties and was barely completed and published in full in 1907. He was carrying on at the same time the study of the ferments as they manifested themselves in the catabolism of the sugars, and this long series of papers was published in 1909 (*Untersuchungen über Kohlenhydrate und Fermente*, pp. VIII and 912, Berlin, 1909). The work, however, which forms the basis of the Abderhalden defensive ferment theory and reaction is to be found in the study of the products of albumin catabolism in his remarkable study of the peptones, polypeptones and amino-acids.²⁴ Upon such a basis Abderhalden began his research.

Emil Abderhalden (1877), who presented his thesis for the doctor's degree at Zurich in 1901,²⁶ became later a student in Emil Fischer's laboratory, and was called in 1904 to Halle. His activities

there were untiring. He edited a handbook of biochemistry,²⁵ which has now reached its eighth volume. He published a textbook of physiological chemistry, which has been translated into English²⁷⁻²⁸ and many other languages. He has prepared a perfectly individual and characteristic laboratory manual in physiological chemistry,²⁹ and he has just completed a new and much extended handbook of biochemistry, the first volume of which appeared in the spring of 1914.³⁰ Besides these literary activities, he has edited a biochemical journal,³¹ and been on the staff of the *Medizinische Klinik* since its beginning. In cooperation with his students, he has published innumerable articles, the results of their researches under his direction.³² This is the briefest outline of the recommendations of the author of the theory and the methods of recognition of the defensive ferments.

About the first of May, 1912, Abderhalden's first book upon this subject appeared. It was entitled "Schutzfermente des tierschen Organismus,"¹ and was a volume of only 110 pages, giving a modest and brief account of the theory and his method of recognizing these ferments (a) by their modification of the optical condition of albuminous materials, and also (b) his second method of recognizing these changes through the production of dialyzable peptones, polypeptones and aminoacids out of the undialyzable albumins. It is unnecessary to describe the methods, as they are probably familiar to you all. This book has reached its fourth edition in a much extended form.²³

Early in the following summer, Abderhalden published his first practical application of these methods to the recognition of pregnancy. This paper was published in the *Münchener medizinische Wochenschrift*, Vol. 59, p. 1305. It brought the method rapidly to the notice of the medical profession. The gynecologists and obstetricians of the world took up the matter, and a few of them became familiar with the laboratory technic. Dr. Victor L. King, of the Parke, Davis and Company laboratories of Detroit, instituted the use of the dried placenta albumin (*M. m. W.*, 1913 Vol., p. 1198), but this venture proved to be of scant economic and of little educational value. Dr. Henry Schwarz, of St. Louis, early came forward with adverse criticism of the test, but later he changed his mind, and has since been one of the most enthusiastic advocates of the method. Almost the same thing may be said for a large number of early critics, who have now become ardent advocates and partisans to its value. Not until December, 1912, did anything appear in the literature relative to the application of this test to psychiatry. The first article was that of Fauser, of Stuttgart. He

had become familiar with the method in the Abderhalden laboratories, and with the advice of Abderhalden himself he had made more than six hundred applications of the test upon fiftyfive patients and a considerable number of healthy individuals. The results of these examinations were published in the *Deutsche medizinische Wochenschrift*, December 29, 1912, Vol. 8, p. 2036.

His second paper appeared in the same journal for February 13, 1913, Vol. 38, pp. 304-306. In this article he reported thirtythree additional cases.

During the following year more than a dozen papers by as many authors were published in the German literature confirming the main propositions and observations of Fauser. Probably the most significant was the report of Wegener from Binswanger's Clinic at Jana in the *Münchener medizinische Wochenschrift* for June 3, 1913, Vol. 60, p. 1197. He confirmed in every particular the conclusions and findings of Fauser. Namely, that the blood of patients ordinarily diagnosed dementia precox gave in more than 66 per cent. of cases reactions to a group of organ albumins representing various phases of pluriglandular dysfunctions, among which in order of their frequency were the genital glands, the thyroid, the cerebral cortex and others. On January 6, 1914, Wegener continues his report, covering more than 600 cases, of which 121 were cases of dementia precox, and supports his previous findings. (*M. m. W.*, January 6, 1914, Vol. 61, pp. 15-16.)

It would be useless to recite any extended account of these findings, as they were presented by various investigators from quite remote localities. The results were much the same.* On the other hand, cases ordinarily diagnosed manic depressive insanity gave no evidence of having any defensive ferments in their blood capable of catabolizing any albumin fundament used in any of the laboratories. Occasionally such a patient had some other disease, such as a goiter, in which a particular organ albumin had been destroyed and had aroused a ferment in the blood capable of catabolizing the same organ albumin in the dialyzer.

Practically all cases of epilepsy, as Binswanger shows (*M. m. W.*, October 21, 1913, Vol. 60, pp. 2221-25), present about the time of the attack a defensive ferment in the blood capable of catabolizing the organ albumin of cerebral cortex and rarely other albumins, but only in cases where dementia precox was suspected did any such

*Nieszytko, L. Ergebnisse der Abderhalden-Methoden für Psychiatrie, *Zeitschr. f. d. g. Neurologie u. Psychiatrie*, October 5, 1914, Vol. 26, pp. 546-563.

patient also show ferments capable of catabolizing the fundament of the corresponding sex gland.

Patients suffering of general paresis, as shown by Max Theobald (*Med. Klin.*, November 9, 1913, Vol. 9, p. 1850), early show a ferment which will catabolize fundament from the cerebellum, a little later fundaments both from the cerebellum and cerebral cortex, and about this time also that of the liver, and as the disease progresses the degenerative process results in ferments that are capable of catabolizing many, and at last all, the fundaments made from the various glands and organs of the body.

In tumors of the brain it has not been possible to have a sufficient experience to render the reaction very valuable, but Wegener, Neue, Fischer, Birnstein and Golla have reported cases in which tumors have been attended by ferments in the blood capable of recognition and thus rendering suggestive aids to diagnosis and localization.

In the alcoholic psychoses naturally but few examinations have been made, but they have been consistent with our knowledge of the anatomical pathology of these conditions and with the theory of the reaction.

In the diagnosis of malignant disease, of syphilis and of tuberculosis, which verge upon psychiatry in a considerable number of cases, it is perhaps worth while to say that no pure albumins representing the cancer cell in the first instance, the albumin of the spirochete in the second instance and the albumin of the tubercle bacillus in the last, have yet been used to any great extent. No pure fundament of cancer has ever been made. It is always mixed with the albumin of the parts of the body in which it occurs. It is never free from the contamination brought about by the anesthetic under which it is removed. No fundament made from a carcinoma transplanted from man to an animal for the purpose of eliminating the albumins of human nerves, human blood vessels and human connective tissue framework have been successfully practiced. This is not, however, the case with syphilis. Syphilis has been transmitted to the rabbit and the syphilitic nodules of the testicle have been used in an experimental way by Dr. F. W. Baeslack, and Dr. Carey P. McCord has done the same with the tubercle bacillus, and recently prepared fundaments from the pure culture of the bacillus. Thus, in the case of syphilis and tuberculosis, we have the promise at least, which is sustained by our very recent and small personal experience, that the Abderhalden method may be used in the recognition of these two common diseases of the insane.

The diagnosis of psychopathic conditions is not the only use that may be made of the Abderhalden method and theory. It is likely

that in research and possibly in therapeutics this system may be of far greater value. We become convinced that dementia precox is a generic group of very mixed and almost incongruous conditions, in which the typical pluriglandular disturbance of sex glands, thyroid and cerebral cortex is associated with toxic conditions and hereditary anomalies that are in no sense, except the symptomatic, to be grouped with them.

Some very remarkable and unexpected properties of the defensive ferments are of great significance in psychiatric research. One of them to which I will call attention is to be termed the passive transmission of the defensive ferments. It was first studied by Abderhalden and Grigorescu and afterward by Arno Lampe and by A. Fauser. These investigators find that it is possible to inject into the peritoneal cavity, the pleural cavity, or even the subcutaneous connective tissue, a small amount of ferment containing serum and afterward, for weeks and months, the serum of the injected animal will be found to contain the same group of defensive ferments as the serum of the blood injected originally contained. This passive transmission can be carried on to the third and fourth animal, and the findings of the original ferments are just as positive in the last animal as in the first. The presence of these ferments continues in the passive animal for as long a time as three months, and experiments have not been in operation long enough as yet to determine how much longer. There seems to be even an increase in the activity of the ferments which is yet to be accounted for. One at once asks the question, Can these defensive ferments be used therapeutically? Let us take an instance.

It is well known that patients suffering of indubitable dementia precox show periods of great improvement and even occasionally of permanent recovery. By all analogy, one would assume that under such circumstances the original toxic albumin which initiated the disease had successfully aroused a defensive ferment capable of bringing about this improvement. It is highly probable that the ferment remains in the body of the convalescent or recovered patient for a long time, or at least for a few weeks after the improvement or the recovery has been established. If, then, the serum of this patient's blood, after it has been examined for the ordinarily recognized ferments attending the disease, namely, sex gland, thyroid and cerebral cortex, is injected into an animal, the serum of that animal's blood will soon show the same well recognized ferments and will probably contain also the ferment which brought about the cure, or the improvement, namely, the ferment aroused by the primary toxalbumin, which is the unknown instigator of the symptom

complex that we call *dementia precox*. If this ferment is effective in bringing about improvement or recovery in one patient, it ought to be equally effective, perhaps more effective, in bringing about improvement in another patient suffering of the same hypothetical toxalbumin poisoning. It seems to me that such an investigation is sufficiently promising to be undertaken, and should it fail it might discover some other road for the relief of the 15,000 youths who in the hopeless captivity of this disease enter the public custodial institutions of the United States each year, never to be released.

In discussion: Michales, Lange and Erhard Schwarz have had most disappointing results in their attempts to apply the Abderhalden method; the blood serums of females in their hands have catabolized the albumin of the testicle, and the blood serums of the males have given reactions to the albumin of the ovary. Children, men and animals have furnished blood that wrecked human placenta fundaments, and the blood serums of obviously pregnant women have failed to do this. But these results are not more incongruous than many early investigations of pathologists and surgeons who attempted to try out the germ theory of disease. They found the pus of acute and chronic abscesses sterile, and the blood of obviously septicemic patients, free from bacteria; while, moreover, they were able to cover fresh wounds with emulsions of the most malignant germs and boasted that they preferred desiccated bacteria to any other wound dressing. They found bacteria where there was no disease; and the malignant disease where there was no bacteria.

The consistent results of the theory of the defensive ferment reaction with the great body of biochemical science is more convincing of its stability than the conflicting testimony of ever so distinguished and conscientious chemists.

The Abderhalden reaction gives the first positive direction toward such investigations and researches as promise to solve the problem of *dementia precox* and many of the minor problems of other psychopathic conditions.

REFERENCES

1. Abderhalden, Emil.—Schutzfermente des tierischen organismus. Ein beitrage zur kenntnis der abwehrmassregeln des tierischen organismus gegen korper-, blut- und zellfremde stoffe.—mit 8 textfiguren. Berlin, J. Springer, 1912. Pp. xi, 110. "Literatur": pp. (100)-110.
2. Holmes, Bayard.—The Bibliography of the Abderhalden Reactions. Index of otolaryngology, May, 1914, Vol.
3. Wohlgemuth, Julius.—Grundriss der fermentmethoden; ein lehrbuch fur mediziner, chemiker und botaniker. Berlin, J. Springer, 1913. Pp. ix, 355.

4. Oppenheimer, Carl.—Ferments and their actions. Translated from the German by C. Ainsworth Mitchell. xii, 343, p. D. London, C. Griffin & Co., 1901.
5. Euler-Chelpin, Hans Karl August Simon von.—Allgemeine Chemie der Enzyme. Mit 4 textfiguren. Wiesbaden, J. F. Bergmann, 1910.
6. Gruss, Johannes.—Biologie und kapillaranalyse der enzyme, von professor dr. J. Gruss, mit 58 textabbildungen und 2 tafeln. Berlin, Gebruder Borntraeger, 1912. vi, 227 pp., illus., 2 col. double pl.
7. Bastian, Henry Charlton.—The origin of life; being an account of experiments with superheated saline solutions in hermetically sealed vessels. With ten plates, containing numerous illustrations from photomicrographs. London, Watt & Co., 1911. 76 pp., 10 pl.
8. Bastian, Henry Charlton.—The beginnings of life: being some account of the nature, modes of origin and transformations of lower organisms. 2 vol., il. table. D. London, Macmillan & Co., 1872.
9. Bastian, Henry Charlton.—The modes or origin of lowest organisms: including a discussion of the experiments of M. Pasteur, and a reply to some statements by Professors Huxley and Tyndall. London and New York, Macmillan & Co., 1871. xii, 109, (1) p.
10. Tyndall, John.—Essays on the floating matter of the air in relation to putrefaction and infection. xix, 338 pp., 24 il. O. New York, D. Appleton & Co., 1895, pref. 1881.
11. Magnin, Antoine.—The bacteria. Translated by George M. Sternberg. 227 pp., 10 pl. O. Boston, Little, Brown & Co., 1880. Contains a bibliography of bacteriology.
12. Klein, Edward Emanuel.—Microorganisms and disease. An introduction to the study of specific microorganisms. London, 1884. Pp. xii, 195, 108 illus.
13. Rosenbach, Friedrich Julius.—Micro-Organismen bei den Wund-Infektions-Krankheiten des Menschen. Wiesbaden, 1884. Pp. x, 122. V plts. (4 col.).
14. Holmes, Bayard.—Secondary Mixed Infection in Typhoid Fever. Chicago, Med. Jour. and Examiner, 1888, Vol. 57, pp. 65-74; also J. A. M. A., 188.
15. Cathaart, E. P.—The physiology of protein metabolism. London, 1912. Pp. viii, 142. Bibliography, pp. 123-142.
16. Fischer, Emil.—Untersuchungen über kohlenhydrate und fermente (1884-1908). Berlin, J. Springer, 1909. viii, 912 pp. Collection of articles originally published in journals.
17. Fischer, Emil.—Die Chemie der Kohlenhydrate und ihre Bedeutung für die Physiologie. 36 pp. Berlin, A. Hirschwald, 1894.
18. Abderhalden, Emil.—Abwehrfermente. Das Auftreten blutfremder Substrate und Fermente im tierischen Organismus unter experimentellen, physiologischen und pathologischen Bedingungen. Vierte, bedeutend erweiterte Auflage. Mit 55 Textfiguren und vier Tafeln. Pp. xxiii, 404 pp., 55 illus., iv pl. (3 col., 1 fold.). "Literatur": v. pp. 25-26.
19. Bergson, Henri Louis.—Creative evolution, by Henri Bergson—authorized translation by Arthur Mitchell, New York, 1911. Pp. xv, 370.
20. Jones, Walter (Baltimore).—Nucleic acids, their chemical properties and physiological conduct. London, 1914. 8vo, p. 118. Bibliography, Abderhalden, pp. 671-697. Vorlesung xxi, Vol. 1.

21. Abderhalden, Emil.—See also Vorlesung xxi, Vol. 1, pp. 671-697, of his Lehrbuch der physiologischen Chemie in Vorlesungen.
22. Abderhalden, Emil.—Über den einfluss des Hohen Klimas auf de Zusammen-zetzung des blutes. Zeitsch. f. Biol., 1902, Vol. 43, pp. 125-194.
23. Fischer, Emil.—Untersuchungen in der Puringruppe (1882-1906). Berlin, J. Springer, 1907. Pp. viii, 608 p.
24. Fischer, Emil.—Untersuchungen über aminosäuren, polypeptide und proteine (1899-1906). Berlin, J. Springer, 1906. x p., 1 i., 770 pp.
25. Abderhalden, Emil.—Ed Handbuch der biochemischen Arbeitsmethoden. Erster—(sie-benter) Berlin, Wein, Urban and Schwarzenberg, 1909-1913. 7 Vol., illus. Numerous bibliographical references.
26. Abderhalden, Emil.—Biochemisches Handlexikon. Berlin, 1910-1914. 8 Vol. Vol 1, 1911. Extensive bibliographical footnotes. Vol. 8 also called "I. Ergänzungsband."
27. Abderhalden, Emil.—Lehrbuch der physiologischen Chemie in dreissig Vorlesungen. Mit 3 Figuren. Berlin, Wein, Urban and Schwarzenberg, 1906. Pp. vii, 787 pp.
28. Abderhalden, Emil.—Textbook of physiological chemistry in thirty lectures, by Emil Abderhalden—tr. by William T. Hall—and George Defren. New York, J. Wiley and Sons, 1908. P. xiii, 722 pp. Bibliographical footnotes.
29. Abderhalden, Emil.—Physiologisches praktikum. Chemische und physikalische methoden. Mit 271 figuren im text. Berlin, J. Springer, 1912. Pp. xii, 283.
30. Abderhalden, Emil.—Lehrbuch der physiologischen chemie in Vorlesungen. Berlin, Part I, 1914. Pp. viii and 736.
31. Abderhalden, Emil.—Fortschritte der naturwissenschaftlichen Forschung. Berlin, Wien, Urban and Schwarzenberg, 1910.
32. See Bibliography in Abwerhfermente, and also the more recent papers [abstracted] by Kastan, Fauser, Kafka, Kirchberg, Plaut, Hilffert and Rosenthal, Nieszytka, Alg. Zeit. f. Ps., 1914, Vol. 71, pp. 721-796.

ARTERIAL HYPERTENSION—WITH ESPECIAL REFERENCE TO TREATMENT*

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Department, Louisville, Kentucky*

Notwithstanding the extensive investigation and experimentation during the last few years, and the numerous contributions which have recently been added to the already voluminous literature anent blood pressure, our knowledge of the subject remains exceedingly meager; indeed, it may be stated without fear of successful contro-

*Portions of this paper were read before the Jefferson County Medical Association, of Louisville, Kentucky, October, 1914.

version that the etiology, physiology and clinical significance of arterial hypertension are still to be classified among the partially solved medical problems. However, despite these pertinent facts, to satisfy the growing popular demand the equipment of every medical practitioner must now necessarily include the requisite instruments for accurately determining the degree of blood pressure, although no definite and entirely satisfactory standard has yet been established for interpreting the clinical data thus obtained. Therefore, it would appear that the routine employment of these so called "instruments of diagnostic precision" merely enable the practitioner to determine the frequency with which hypertension occurs and to more or less accurately measure its degree, without affording any information of actual etiologic, pathologic or even clinical importance.

In their investigation and experimentation practically all observers have erred in seeking to establish what they are pleased to designate normal systolic and diastolic blood pressure, the obvious fundamental proposition being evidently overlooked or ignored that, like the pulse rate and body temperature, the arterial tension of every individual is subject to wide variation within strictly normal limits, depending upon the general health, i.e., physical and nervous equilibrium. And granting the truth of this premise, it seems absurd to attempt the formulation of mathematical rules and tabulations for general application.

It may be readily understood that the greatest degree of arterial tension, during each cardiac cycle, must necessarily occur at the crest of the pulse wave, and is, therefore, systolic; that the lowest tension is observed during diastole; and as both may widely vary with the age of the individual and the condition of general health, the results of mathematical tabulations are misleading, if not actually fallacious, in their clinical application. In further illustration of the foregoing remarks, it may be interesting to note the factors concerned in the maintenance and regulation of blood pressure. According to Norris, the cardiovascular system may be considered from this point of view as consisting of six elements:

(1) The heart, the source of energy.

(2) The arteries, acting as elastic vessels, dilating to receive each new ventricular delivery of blood and contracting to maintain during the filling and resisting periods of the heart an even flow through the capillaries.

(3) The capillaries, the site of active functionation of the blood and, with the smaller arterioles, the chief source of the resistance in the circulation.

(4) The veins, which, with the capillaries, serve as a reservoir, maintaining a pressure just sufficient to fill promptly the relaxing heart for its next systolic contraction.

(5) The blood itself, the incompressible, inelastic medium which fills the cardiovascular system.

(6) The lymphatic system, with its tissue spaces, serous cavities and lymphatic channels filled with lymph, acting as an additional but less promptly available reservoir for body fluids.

After admitting that there exists no hypothesis upon which to base a satisfactory explanation of either the cause or the mechanism of nephritic hypertension, Norris quotes the conclusions of Janeway, as follows:

(1) Hypertension may arise through purely quantitative reduction of kidney substance below the factor of safety. It is difficult to conceive of this as other than a vascular hypertonus due to retained poisons of some kind. Its clinical paradigm is the hypertension accompanying bilateral ureter obstruction of the unfortunate surgical removal of the only functioning kidney. Possibly it is one factor which helps to produce hypertension in the contracted kidney.

(2) Hypertension may arise in connection with the unknown intoxication which causes disturbances of the central nervous system, and which we call uremia. This intoxication is not one of retention, in a strict sense, although it is most commonly present in those cases of advanced nephritis which manifest marked nitrogen retention. Clinically it is associated with severe acute nephritis, sometimes at its very onset, besides the subacute and chronic inflammatory affections of the kidney.

(3) Hypertension may arise in primary irritability of the vasoconstricting mechanism from unknown, probably extrarenal, causes, which lead eventually to arteriolar sclerosis. In this type the disease in the kidney is the sequence, not the cause, of the generalized vascular lesion. When it progresses to a condition of extreme atrophy, resulting in the true primary contracted kidney, a renal element may be added to the existing hypertension. In some cases arteriosclerosis of the larger vessels may spread peripherally and produce a similar form of disease. In these forms of primary vascular disease it is probable that eventually widespread narrowing of the arterial stream bed in some cases produces a permanent organic increase in peripheral resistance.*

*Like many other presumed explanations of observed clinical facts, contained in textbooks and elsewhere, these observations seem to utterly fail of adequate elucidation.

Muenzer and many other clinicians distinguish between two forms of arteriosclerosis, one involving the larger vessels, the other the arterioles. The former need not produce hypertension, but the latter is characterized by marked elevation of blood pressure. They consider permanent hypertension due to arterio-capillary-sclerosis rather than to nephritis, because severe and long continued renal disease may fail to produce a high blood pressure, and, on the other hand, the latter may occur without the coexistence of a marked kidney lesion. Pal also believes the theory that all cases of hypertension are due to disease of the renal arterioles is false, and Ophuls thinks the importance of renal lesions in hypertension has been overestimated.

It is well recognized that any disturbance of the peripheral circulatory system will produce its effect upon the blood pressure; likewise, any serious interference with the cardiac, deeper vascular, renal, alimentary or nervous mechanism of the economy may be productive of similar effects. Thus hypertension may owe its origin to any serious systemic disorder; to lesions involving the heart or kidneys; to inordinate indulgence in alcoholics and tobacco; to systemic poisoning from lead or various chemicals; to autointoxication (stercoremia) and prolonged coprostasis; to nervous affections; to cerebral lesions; and to purely emotional causes.* Norris is accredited with the following ambiguous and evidently erroneous statement: "Arterial hypertension is generally a condition of gradual development, extending over years of time, with a tendency to increase, and with periods of spontaneous intermission or exacerbation. These latter are often, but by no means always, traceable to hygienic or dietetic variations. They are very closely associated with psychic phenomena, which are generally by far the most potent factors for good or ill." The prolonged administration of drugs included in that heterogeneous group designated as vasoconstrictors may cause hypertension, and their indiscriminate employment may, therefore, have a distinctly harmful influence. An excess of the so called purine or nuclein bodies in the circulation may induce gout, rheumatism, etc., and thus favor the production of hypertension. Luxurious living ("high living"), physical and mental overexertion, and the ills resulting from faulty metabolism, are also prolific causes.

Norris claims that there are oftentimes two factors only which are concerned in the production of arterial hypertension, viz. (a) a basic or essential factor, the point to which pressure must be raised

*Emotional hypertension is transitory, the slightest excitement induces a recurrence, and, as it depends upon a purely intangible basis, is usually exceedingly intractable under any method of treatment.

to maintain metabolism, and (b) a superadded or toxic factor, which results from faulty habits of life, and adds that it is the latter only which we are justified in treating. Also that hypertension itself alone is not an indication for treatment, excepting along preventive lines, any more than is the presence of a heart murmur, that hypertension is one of nature's methods of compensating circulatory or visceral deficiency. In the latter statement the writer most heartily agrees.

In considering the treatment, it must at the outset be remembered that hypertension (like its antithesis hypotension) merely represents the subjective expression of some underlying cause, i.e., it is a clinical manifestation the etiology of which may or may not invariably be susceptible of definite and understandable demonstration. From a strictly technical standpoint, therefore, it would appear inaccurate to speak of the treatment of arterial hypertension as though it were a disease, the observed symptoms not being entitled to inclusion in the category of clinical entities. However, since it has been customary to classify the symptomatic syndrome as a separate and distinct lesion, the writer will abide by the established rule without for a moment admitting its correctness.

It must be obvious that wherever it is possible to do so, the most important desideratum in the treatment of hypertension is to ascertain and remove the essential cause, that otherwise remedial measures instituted may not only be misdirected, but absolutely contraindicated, and, therefore harmful. Bearing this pertinent observation in mind, it appears equally obvious that the treatment to be permanently effective must be predicated upon an accurate understanding of the actual causative factor, whatever it may prove to be, inasmuch as the former is necessarily dependent upon the latter. Moreover, since in the majority of instances the hypertension may be regarded as compensatory and reparative, its reduction beyond certain well defined limits may be harmful rather than beneficial to the patient. Therefore, the institution of treatment, especially by means of drugs, without first ascertaining, if possible, the cause of the symptoms, may oftentimes be courting serious disaster.

In this connection the writer doubts whether the active so called routine drug treatment of hypertension can be reasonably justified upon any hypothesis hitherto suggested, particularly without first making every possible effort to ascertain the cause of the symptoms. Of course, it is recognized that the angles or viewpoints concerning the treatment of every obscure malady are as numerous and diversified as the theories advanced to explain its causation, but something more tangible than the flimsy film of theory is required upon which

to base rational therapeutics. Thus, according to his favorite theory of causation, one practitioner may unwisely overtreat the unfortunate patient with an abnormally high blood pressure, whereas another may advocate a strict attitude of *noli me tangere*. Obviously such observations contribute nothing of value to our therapeutic knowledge.

It has been customary among various clinicians to speak of arterial hypertension as acute and chronic, a classification which is entirely unnecessary and misleading. As hypertension almost invariably owes its origin to some definite underlying cause, technically it can be considered neither acute nor chronic, excepting in so far as the statement may be applied to the essential causative factor, i.e., the lesion which is responsible for production of the observed symptoms. Upon a similar basis it is equally inaccurate to classify hypertension as temporary or permanent, unless it be admitted that the causative lesion is chronic and manifestly incurable.

The ancient adage that "a man is as old as his arteries" has lost none of its truth by frequent repetition. Thus, an individual may exhibit indubitable evidences of senility at the age of twenty, whereas another may appear youthful at eighty. The average systolic blood pressure of an individual between the age of eighteen and thirty years may be approximately stated as 110 to 140, and between sixty and seventy as 130 to 165 mm. Hg. Any radical variation from these approximate figures may be considered abnormal or pathological. From a strictly clinical standpoint, patients with hypertension represent two classes: (a) those presenting cardiovascular manifestations, such as dyspnea, anginoid pains, etc., and (b) those with renal symptoms, such as polyuria, headache, visual disturbances, etc.

The routine exhibition of drugs for the purpose of lowering arterial tension has proven unsatisfactory, and at best their effects can only be temporary. However, in hypertension from any cause much benefit may be expected to accrue from regulation of the diet, reduction in the quantity of food ingested, especially the nitrogenous varieties, the interdiction of alcohol and tobacco, the ingestion of an abundance of pure water between meals, and the securing of adequate elimination through the alimentary tract, the kidneys and the skin, by the administration of appropriate remedies. Moderate exercise and frequent bathing of the body surface are beneficial, but mental worry and physical fatigue should be strenuously avoided.

In many instances tension may be reduced by venesection, and twenty to twenty-four ounces of blood may be withdrawn safely,

provided the operation be not too frequently repeated. Change of climate and environment are oftentimes advantageous, e.g., a trip to Europe, the seashore or the mountains, freedom from mental worry and business cares being thus secured.

Strange as it may appear, and as previously emphasized herein, arterial hypertension does not invariably accompany arteriosclerosis and chronic nephritis, and when occurring under such circumstances it may be considered as distinctly compensatory. High blood pressure in nephritis is necessary to insure proper elimination through the damaged kidneys, and in arteriosclerosis increased pressure promotes the circulation in organs and structures where the blood supply might otherwise be dangerously minimized. In these two diseases, therefore, the advisability of reducing tension by the administration of drugs is open to serious question. In the majority of other lesions, however, where hypertension is a concomitant, especially the infectious fevers, etc., it has a more sinister significance, being due to loss of the liquid constituents of the blood with consequent vasoconstriction, and prompt efforts should be made toward reduction pending recovery of the patient from the systemic disorder.

The prophylactic treatment of hypertension is of paramount importance, and briefly consists of (a) the correction of dietary errors, (b) the observance of general hygienic and sanitary principles, (c) frequent urinalyses and blood examinations, (d) adequate elimination, particularly through the alimentary tract. The ingestion of artificially prepared buttermilk (*Bacillus Bulgaricus*) and the administration of Russian oil are beneficial in promoting intestinal antiseptics, thus preventing fecal stasis, autointoxication, etc. If local infection of any character be present, it should receive the necessary treatment.

If hypertension has already become manifest when the patient is first observed, regardless of what may be the cause of the symptoms, the primary indication is rest in bed, with minimum dietary, which may be prolonged for two or three weeks if necessary. The mental relaxation thus secured is probably of equal importance to the enforced physical repose. The patient may later be allowed to partake of food regularly but sparingly, ingesting only such articles as are easy of digestion and readily assimilable. All food should be slowly eaten and thoroughly masticated, the heartiest meal being ingested at midday; liquids during meals should be limited in quantity, but pure water *ad libitum* may be permitted between meals. A short rest (siesta) after eating is always desirable.

Free elimination may be secured through the alimentary tract

by the administration of mild laxatives, such as small doses of cascara, calomel, blue mass, magnesium sulphate, etc. The beneficial effects are produced by depleting the portal system, and thus removing irritating toxic materials. Excessive sudation should not be artificially induced in the steam room or otherwise, as such treatment is depressing and for obvious reasons oftentimes dangerous in hypertension. On the contrary, however, the dry hot pack may be of the greatest service.

In certain cases phlebotomy constitutes one of the most prompt and efficacious methods of reducing hypertension. It is especially valuable in venous stasis, because of the toxic material which is thus removed from the circulation.

It is a matter of common observation that arterial tension is markedly lessened during sleep, i.e., nocturnal blood pressure is normally less than diurnal, and *vice versa*; consequently it is important that the patient secure the requisite amount of absolute rest. It is inadvisable, however, to resort to sleep producing drugs so long as rest can be otherwise obtained. A moderately warm general bath, hot mustard foot baths and light massage before retiring will usually insure a sufficient amount of refreshing sleep.

In suitable weather, provided the patient be physically able to remain in the open air, mild forms of exercise are beneficial. Walking is recommended as the most appropriate exercise, but golf may be permitted with caution against prolonged and violent effort. The benefit derived from exercise is doubtless largely attributable to the greater peripheral distribution of blood, sudation, improved digestion, and partially to the mental relaxation thus induced.

The diet should consist principally of milk and vegetables, with red meats and eggs in small quantities. The main dietary dictum should be moderation. While a salt free diet would seem ideal and markedly lighten renal function, it is irksome to the patient, and therefore difficult to be secured. Bulky foodstuffs, gravies, soups, condiments, etc., should be interdicted. Neither mental nor physical exertion should be permitted immediately after eating.

The conservation of the energy of the patient is a most important feature. In the early stage of increased blood pressure the proper regulation of the daily life and diet is the only rational or efficacious method of treatment (Norris). So far as it may be possible, all sources of worry and excitement must be eliminated, and the physical and mental responsibilities of the patient be reduced to the minimum.

Notwithstanding the fact that the so called "irrigation treatment" to reduce hypertension has long since been proven a delusion, there

are still otherwise apparently intelligent practitioners who advocate the ingestion of enormous quantities of fluids with the idea of "flushing the kidneys and diluting the poisonous material in the blood stream!" Such treatment is not only ineffective, but the logical result is aggravation of the symptoms by increasing the work of the already overburdened and damaged kidneys.

As previously indicated, moderate sudation is always desirable, but excessive sweating by means of Turkish, steam, hot air, electric and other varieties of hot baths is not to be recommended. The hot bath causes marked temporary increase in blood pressure before sudation occurs, and may, therefore, be attended by serious dangers to the patient, such as vascular strain, cardiac rupture and general reduction of nervous tone. Warm baths, however, as already noted may be advantageously employed.

General massage, moderately applied, is one of the most efficacious methods of treatment which has thus far been advocated for the reduction of arterial tension. "It supplies many of the benefits of exercise without the attendant expenditure of energy" (Norris), and is recommended as a routine measure. In selected cases good results have also been reported from the use of vibratory massage.

Climate should be mentioned in this connection, as it has an important bearing upon the physical and mental comfort of the patient. A warm, equable climate is especially desirable, such, for example, as that of Jamaica, the Bermudas, Hawaii, Southern California, etc. Florida is regarded as less favorable, because of sudden changes in atmospheric temperature and the excessive humidity.

The undesirability of active routine drug treatment has already been mentioned. There are certain remedies, however, which may be of service when judiciously and cautiously administered, viz., amyl nitrite, sodii nitrite, nitroglycerine, digitalis and the iodides. When angina is a prominent symptom, with inefficient compensation, opiates may be permissible. The intravenous injection of salvarsan may be useful in certain cases.

REFERENCES

- Norris.—"Blood Pressure, Its Clinical Applications," 1914.
Muenzer-Pal-Ophuls.—Cited by Taussig, *Interstate M. J.*, August, 1914, p. 935.
Janeway.—Cited by Norris, l. c.

WHERE THE CYSTOSCOPE IS REPLACING THE KNIFE
IN UROLOGY*

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This is a subject which seems destined to be of increasing interest to the general practitioner and to the general public, for who of us is desirous of a cutting operation or a general anesthetic where the same ends can be reached by other means?

While it is the object of this paper to consider only those conditions of the urinary tract which seem best suited for cystoscopic operation, we must not lose sight of the conditions in which an open operation is unavoidable. Our decision in this matter must, as it is well known, rest largely upon the evidence given by the cystoscope itself, coupled with the aid which radiography adds.

PYELITIS

For any exactness in the diagnosis of this condition, the cystoscope and ureter catheters are essential. It was while using the cystoscope in this way in a number of cases of acute pyelitis that I was struck by the fact that in most of them in which I had passed the catheter to the kidney pelvis on the affected side, that almost immediately after this small operation the pain, which was often severe, would disappear and the temperature, in the course of the following twentyfour or fortyeight hours, would usually decline, and the pyuria commence to clear up. It seems quite reasonable to suppose that in these cases all that was necessary in starting these patients on the road to recovery was a reestablishment of the normal drainage.

Although most cases of pyelitis apparently recover without interference, a certain number become chronic and the starting point of a pyelonephritis; and, in view of this, the simple procedure of passing a ureter catheter in all cases with much pain or temperature would be wise.

RENAL HEMATURIA

Hagner, of Washington, reports three cases of kidney bleeding of long standing, in which, as a diagnostic measure, he used the ureter catheter. In all of these cases after the passage of the catheter, the patients ceased to bleed, began to regain their weight, and to apparently get well. There does not seem to be any very good reason for this surprising result.

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STONES IN THE URETER

Of recent years there have been a number of methods suggested and used to facilitate the downward passage of ureteral calculi. Oil and glycerine injected into the ureter, and if possible beyond the stone, have been used. Graduated catheters, bougies with an olivary tip, catheters with a dilatable balloon or an umbrella arrangement near the tip have all been employed with the purpose of starting the faltering stone on its descent.

A catheter electrode with a metal olivary tip is one of the latest means employed to dilate the ureter below the stone. With this the D'Arsonval current is used, the smaller pole being at the olive tip of the catheter, while the larger or diffuse pole is applied to the abdomen or over the sacral region. This seems to effect a relaxation and dilatation of the ureter when introduced, which often permits the arrested calculus to pass downward by peristaltic action of the ureter into the bladder.

It must not be supposed that any method as yet devised for the purpose of coaxing along a ureteral stone which has become arrested or impacted can be looked upon as an infallible means to that end. But this much can be said, that the very great majority of such stones when they do not pass spontaneously can be helped along through cystoscopic manipulation. This being so, it is the patient's right to be given the benefit of a thorough trial with cystoscopic methods before considering the hazard of a major operation. When a stone has descended to the ureteric ostium, and there projecting into the bladder becomes lodged, it is a simple matter to grasp it with the forceps of the operating cystoscope and withdraw it. Once free in the bladder, most of these small stones will be passed voluntarily; and if they are not, they can usually be drawn out or crushed and washed out with a cystoscope designed for that purpose.

FOREIGN BODIES IN THE BLADDER

The broken off ends of catheters, silk sutures, and such objects as perverted individuals will at times push into the bladder, constitute this class of cases. These can almost always be withdrawn with the forceps and need no further mention.

We now come to by far the most interesting condition presented to the urologist for operation through the cystoscope.

TUMORS OF THE BLADDER

The commonest of these is the papilloma, which, even when histologically benign, may be potentially malignant. The cutting operation for these growths has been far from satisfactory; first, owing

to the great frequency of their recurrence, and that generally along the bladder scar made by the operation; and, second, owing to the alarming percentage of their malignancy when this recurrence takes place. The application of the high frequency (Oudin) current electric spark to these tumors is a simple and safe procedure, carried out by passing the insulated wire through the catheter canal of a cystoscope, and the growth thus cauterized. The operation causes little or no more discomfort than an ordinary cystoscopy for ureter catheterization, and one to three or four applications of a few seconds to a few minutes has been sufficient in the majority of cases thus far reported to effect a complete destruction and disappearance of the tumor.

Although the cases have been too few, and the time too short, to speak definitely as to the permanency of the cure, two things are certain, a major operation under general anesthesia is avoided, and there is no bladder scar to invite recurrence. When the papilloma has grown so large that it completely fills the bladder, or from a cystoscopic view appears to, it had best not be considered as suitable for the cystoscopic operation. Fortunately, such extensive growths are today rarely seen.

CARCINOMA OF THE BLADDER

This is a condition, when at all advanced, is coming more and more to be looked upon as one in which the open operation has so much of risk and mutilation, and so little of promise or permanency to offer, that palliation of pain, when this can be effected, seems the wiser course to follow. In some of these cases much comfort and often relief from the distress of urinary obstruction, or the debilitating result of bleeding, may be obtained by cauterization of the growth through the agency of the D'Arsonval or bipolar current applied through the cystoscope.

PROSTATIC OBSTRUCTION

Under this head we may consider two main classes. The one where the obstruction is due to a perfectly evident, and more or less general, outgrowth of adenomatous tissue. In this class prostatectomy is the only course worth considering in patients who may be considered fair operative risks. The other class includes those patients who, with small fibrous prostates, are suffering an obstruction which is due to the constriction of their vesical outlets, and those who, with an otherwise negative prostate, have a small intravesical outgrowth which tends to block the internal urinary meatus very much on the mechanical principle of the ball valve.

These patients with the fibrous constriction and with the ball valve should be offered an opportunity of treatment by the cystoscope to see if it is not possible to destroy enough obstructing tissue by means of the cauterizing electrode to reestablish the normal function of the bladder in emptying itself, and thus save them the risk of the more serious surgical procedure.

In concluding this paper, I must reiterate the following points: In fairness to our patients, the opportunity should never be lost to save them an adventure with the knife or a general anesthetic when that is found to be possible. It must ever be remembered the decision must rest chiefly in this class of cases upon the evidence of the cystoscope and the X ray. And, finally, we must not allow our prejudice for this pleasanter path of procedure through the cystoscope to stand in the way of an open operation when that shall be necessary.

DIATHESIS

Our older readers, or those who are the sons of practitioners, will recall the stress which was once laid upon diathesis, especially in the treatment of disorders of the very young. Of great importance was the so-called scrofulous or strumous diathesis, a condition which is now considered to be a form of tuberculosis, although its characteristic phenomena often exist when the bacillus is not to be found. Dr. Hector Charles Cameron, of Guy's Hospital, London, in the *British Medical Journal*, for July 11, 1914, makes a strong plea for a closer study of the strumous—or, as Czerny has called it, the exudative—diathesis. Doctor Cameron admits, what was once stated by Professor Emmett Holt, that the medical problems of infancy are in Great Britain, left too much to nurses and the philanthropic laity; and he thinks that if the scientific study of the ailments of very young infants, so highly important to the State, was appreciated by the English physician, not only would he give more time and attention thereto, but he would soon recognize the importance of the diatheses, the neuropathic among others, as well as the exudative.—*New York Medical Journal*, July 25, 1914.

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EDITORIALS

THE SALTS OF CALCIUM

Perhaps it is charitable to conclude that the reason for the terms calcium and lime being used interchangeably is due to thoughtlessness. The oxide (CaO), which is an alkaline earth, is what is commonly known as quicklime, which upon the addition of water furnishes the hydrate of calcium $\text{Ca}(\text{OH}_2)$, but we are more familiar with it under the name slaked lime. We can call to mind very few elements whose salts have proved so reliable and important as those of calcium. Many of these remedial agents were familiar to the patriarchs in medicine, and today they have not fallen into disuse. It is unnecessary to describe the use of the carbonate, hypophosphate, hydrate, chalk mixture and others, and yet we know that the chloride and the lactate have some new avenues of usefulness. For instance, to increase the coagulability of the blood. Perhaps this is not so recent, for I used the calcium chloride in hemorrhage in typhoid fever at the Indianapolis City Hospital twelve years ago and also in pulmonary hemorrhage, but I did not confine myself to its use in these two forms of hemorrhage only. I have several times reported my findings in the medical press. I now prefer the lactate, because the stomach accepts it more kindly. Perhaps in addition to increasing coagulability it acts as a neutralizer in hyperacidity. We cannot doubt its efficacy in hemophilia and perhaps in some cases of urticaria as a prophylactic. In certain forms of

albuminuria I know of its importance, although I have given preference to the lactate of strontium, since by its use there is an absence of albumin in functional albuminuria, and although it has been recognized as a means of differentiation, yet I have seen some benefit in the organic type. As the excessive use of a stimulant produces over stimulation, so we are cognizant that too large doses or the too long continued use of the chloride or lactate of calcium in hemorrhagic patients will produce just the kind of a condition we are trying to combat. We must bear in mind that in such conditions as scurvy, enteritis, gastric hyperacidity, pancreatitis, and as a prophylactic in bronchial asthma, the calcium salts, according to clinical reports, have given favorable results. So far as I know, Robeson was the first to suggest the use of lactate of calcium as a prophylactic, to be used before a surgical operation when it was thought that there was impending danger of postoperative hemorrhage. Perhaps the use of the lactate in the treatment of certain dermatoses lost cast for a time, but in the *Journal of Cutaneous Diseases* for October White reports benefit in some cases and a cure in others. There were seventyfour patients with diseases, divided as follows: Erythema multiformis, urticaria, chilblains, hyperidrosis, and purpura rheumatica. He does not consider lactate of calcium specific, but since some patients were cured and others improved, there should be given a thorough trial with this agent. Forchheimer, in his "Therapeusis of Internal Disease," Vol. IV, 1913, takes the view that the general problem of the metabolism of calcium should receive attention, especially in its perturbations due to thymus, or parathyroid disease, and also in its relation to the acids of the gastrointestinal tract. Certain epilepsies show disturbances in the usual calcium interchange, and such epilepsies are much benefited by administration of the salts of calcium or in a substance rich in such salts. Dr. Thomas J. Beasley, of Indianapolis, has advanced the theory that calcium used intravenously will benefit patients with tuberculosis, taking as a basis that nature surrounds tubercular foci in the lungs and to a lesser extent in other tissues, with calcium deposits. For five and one half years he has been working clinically from this viewpoint, and a preliminary report of his success was given in detail in the *Indianapolis Medical Journal* for January,

1915. It is hoped that his new treatment for tuberculosis will prove to be efficient. So many methods have proved unsuccessful that we are prone to assume the rôle of a doubting Thomas, but in this case we wait with patience, hope and confidence. Dr. Beasley was superintendent of an outdoor hospital for tuberculosis for some years and had an unusual opportunity to apply a test.

S. E. EARP.

A RÉSUMÉ OF VARIOUS TREATMENTS WITH EMETINE

It was Leonard Rogers who discovered amebic dysentery in India in 1901, at which time and for several years thereafter he regarded ipecac a specific treatment. Several years later he announced that early cases of amebic hepatitis was rapidly curable, and that tropical abscess of the liver was easily prevented by the same drug. But that in severe and advanced cases of amebic colitis it was frequently impossible to administer sufficient ipecac by the mouth in time to save the patient. In March, 1911, Vedder published his experiments with a fluid extract of ipecac and declared that it would kill amebae in culture in dilutions as high as 1 to 200,000. During the following year, 1912, Rogers introduced a treatment for amebic dysentery by means of the hypodermic and intravenous injection of emetine hydrochloride, the salt of the chief alkaloid of ipecac, and claimed it to be a specific. The great value of this discovery is that with small, harmless and curative doses of emetine hydrochloride hypodermically, the curative effects of ipecac can be speedily obtained, whereas when ipecac is given, the massive doses needful for a cure cause unpleasant effects, besides in the majority being impossible, as they produce intolerable and dangerous nausea and vomiting. The remarkable results obtained and published by Rogers have been confirmed by numerous investigators, not only in amebic dysentery, but in the bacillary form of dysentery as well. Its use has extended to other diseased conditions including a wide range.

M. Mayer, in the *Münchener Medizinische Wochenschrift* for February 3, 1914, reported a case of clinically severe dysentery lasting for several weeks. *Lamblis intestinalis* and spirochetes were found in large numbers. Injections of 0.05 gram emetine hydro-

chloride brought about immediate cure. Frank C. Youmans, *New York Medical Journal*, February 14, 1914, declares emetine hydrochloride to be a specific for amebic dysentery in the same sense as quinine is for malaria or salvarsan for syphilis; when used at the onset of the disease, cure should be prompt and permanent in all cases.

Dopter, *Paris Medical*, March 14, 1914, concludes that emetine treatment should be continued for four or five days after the first formed stool, as recurrence has been noted eight or ten days after apparent recovery; especially is this true in the tropics.

James A. Raeburn, *British Medical Journal*, March 28, 1914, as a result of the observations of Flandrin and Joltrain, was prompted to make use of emetine hydrochloride in pulmonary tuberculosis, and confirmed their observations that its use checked hemoptysis, as well as the excessive discharge of sputum in many cases. He also reports it to have the power of checking bronchitis, often causing its complete disappearance. It did not influence the bacilli in the sputum or the tuberculin reaction. He used it to control expectoration and to lessen congestion of the bronchi and observed no ill effects. The drug, Raeburn thinks, should not be used when there is a weak heart.

Flandrin injected emetine hydrochloride in the thigh in the treatment of hemoptysis with surprising results, the hemorrhage from the lung stopping immediately. There were no disagreeable sensations, no palpitation, dizziness or nausea. In the more threatening cases Flandrin repeated the injection in twelve hours and once on the following day to a total of five doses. He determined arterial pressure before and after emetine injections, but was unable to note appreciable change.

Edhem, *Bulletins et mémoires de la Société médicale des Hôpitaux de Paris*, June 26, 1914, reports two cases of intestinal hemorrhage in which injections of emetine hydrochloride caused complete and permanent disappearance of the hemorrhage, in one case after a single injection.

L. E. Bertrand, in *Bulletin de l'academie de medicine*, April 14, 1914, reports a case of abundant hematemesis in duodenal ulcer treated by Palasne de Champeaux, in which the bleeding was

promptly arrested by a single hypodermic injection of two thirds grain (0.04 gram) of emetine hydrochloride. He also mentions a case of hemothorax due to a penetrating wound of the chest, in which injections of two thirds of a grain daily for six days of treatment was followed by rapid and uninterrupted recovery. Bertrand also calls attention to the efficacy of the agent in hemoptysis and fibrinous pneumonia.

Sprue has been successfully treated by emetine hydrochloride by Cantlie and Ashburn. In all cases the soreness of the tongue and mouth either cleared up or was improved.

L. B. Keng, *Journal of Tropical Medicine and Hygiene*, July 1, 1914, reports the use of emetine hydrochloride in amebic dermatitis, a condition beginning as minute papules, red and hard, discrete, and very suggestive of variola, but unaccompanied by fever. Vesicles appear in one or two days, which ultimately break down, and then heal or leave a depressed ulcer. Ameba are found in the pus indistinguishable from *Entamoeba histolytica* and generally in the stools. Patients may or may not have had dysentery. The disease usually appears first near the anus, and spreads to the buttocks, back, limbs, face and trunk; septicemia, abscesses, cachexia and renal complications may result.

Allen J. Smith and M. T. Barrett, dentists of Philadelphia, reported in the *New York Medical Journal*, July 11, 1914, having found amebas in scrapings from pyorrhea alveolaris pockets in fifty cases. They injected emetine hydrochloride, 0.5 per cent. solution, into the apical pockets, filling them as the needle was withdrawn. This treatment was applied every day or second day with marked improvement; suppuration ceased and the gums assumed a healthy appearance. There was also systemic improvement. Middleton and others have confirmed these results. *Entamoeba* were also found associated with the buccalis in the tonsils, which lead these investigators to associate them with chronic or subacute arthritis. Pyorrhea and tonsillitis have been known to be connected with the etiology of arthritis and other systemic diseases, and the suggestion is made that emetine hydrochloride be used as a remedial agent for these diseases hitherto resistant to all forms of treatment.

The dosage of emetine hydrochloride as agreed upon by these

several investigators is for hypodermic injection from one third to one grain repeated daily or every second day, as indicated by the severity of the case. Rogers, who must be regarded as the pioneer in the study of ipecac and emetine in amebic dysentery, reports giving as much as a grain three times a day, although this quantity is seldom necessary. Intravenously one half to one grain may be given to adults. Children are very tolerant to emetine given hypodermically, Rogers having given one third grain to children eight years of age. He states that one sixth grain may be given to younger children. There is usually an absence of local effects.

TETANUS AND VACCINATION

There are reported from time to time, in various places, cases of tetanus following vaccination. Such reports are disquieting. To the lay mind they give support to the blatant arguments of the irrepressible antivaccinationist; and they naturally engender even in the professional mind suspicions of a very unpleasant character. The investigations made upon this subject, and the information which we possess, have led to the conclusion that when tetanus follows vaccination it may be attributed to an infection of the trivial wound by the tetanus organism, subsequent to the vaccination; and not to the introduction of tetanus along with the vaccine virus.

In a matter of such moment, however, the data which we possess and the conclusions drawn therefrom need all possible reinforcement. In a recent bulletin of the Hygienic Laboratory (No. 95) Francis devotes himself to this purpose, and reports the results of extensive studies on tetanus, with special reference to the relation between vaccine virus and that disease. Some of his work and conclusions are of particular interest.

In accordance with the federal law of 1902 regulating the manufacture and interstate sale of viruses, serums, toxins, etc., all vaccine virus on the market is examined in the Hygienic Laboratory. During the past two years special studies have been made of vaccine virus to determine the presence of tetanus spores. In a total of over 1,500,000 doses of vaccine virus examined, since the law went into effect, in no single instance has the tetanus bacillus or its spore been discovered. In many instances samples of vaccine virus have

been examined from the same lot as that used in cases of vaccination tetanus, but with the same negative results. In his experimental work, therefore, Francis, it is very interesting to note, was compelled to resort to artificial contamination of the vaccine virus with tetanus spores.

In addition to certain interesting and peculiar biologic properties of *Bacillus tetani*, mention of which are omitted for lack of space, Francis reports some striking experiments which bear in a very direct and practical manner upon the question of the relation between vaccination and tetanus.

He says: "If the occasional case of tetanus which follows vaccination in children is dependent upon the production of toxin by a few stray spores in the vaccination sore, it seems reasonable that an animal susceptible to both tetanus and vaccinia should contract tetanus when vaccinated in multiple places on his body with vaccine virus heavily contaminated with tetanus spores." The *rhesus* monkey is highly susceptible to vaccinia, and "about half as susceptible to tetanus toxin as a guinea pig is, weight for weight." Five of these animals were accordingly vaccinated on the back, each in five places, with a vaccine virus heavily contaminated with tetanus spores. Each of the monkeys developed five pronounced "takes." In the case of one of the animals a portion of the crust of a "take" was removed on the fourteenth day, and injected subcutaneously into two guinea pigs. Both of these animals developed tetanus. In the case of two of the monkeys staphylococci were injected around the vaccination sores several times. Not one of the monkeys developed tetanus.

In a second experiment three more monkeys were vaccinated as before with contaminated virus. All had "takes." None had tetanus. Yet one drop of the material used for vaccination, when injected subcutaneously into another monkey, produced tetanus.

In a third experiment a monkey was vaccinated as before, but with plain virus, and after a good "take" had developed tetanus spores were rubbed into the sore. The animal did not develop tetanus.

In another experiment a calf was vaccinated by linear incisions on the abdomen and insides of thighs with vaccine virus heavily contaminated with tetanus spores. Later, when the virus was ready

for collection, one longitudinal half of the abdomen was scrubbed with a sterile brush and water before taking off the virus. Virus was taken from the other half of the abdomen without any previous treatment. Subsequently samples of the virus from the two sides were tested for tetanus. Of eighteen tests from the unwashed side all were positive; of eighteen from the washed side only four were positive. Evidently the process of vaccination had very little tendency to carry the tetanus spores deep into the tissues.

From his work Francis is of the opinion that, "so far as tetanus spores are concerned, the process of vaccination does not seem to offer any specially favorable conditions for their generation." On the contrary, these spores seem to remain on the surface and in the crusts which the body is endeavoring to throw off rather than to absorb.

Francis also discusses the activation of quiescent tetanus spores in the body by the injection of quinine or by the occurrence of staphylococcus lesions, and reports some experiments in this connection. From all of which it would seem that this sort of process probably has only a remote connection with the occurrence of postvaccination tetanus.

The experimental evidence coincides with other available data that tetanus following vaccination can not be attributed to contamination of the virus used. It does not, however, so forcibly support the view that the development of tetanus is due to a subsequent infection of the vaccination sore with tetanus. It is obvious, however, that if any relation exists between the two, either the infection must be introduced with the virus, or else the vaccination sore must subsequently prove the atrium for the same. The only other possible supposition would be that the vaccination in itself served to render active quiescent tetanus spores already in the body either at the site of the vaccination or elsewhere. This supposition, on all of the evidence, seems untenable. It may be added that some writers have pointed out the fact that the incubation period of postvaccination tetanus is, as a rule, against the idea that the infection was introduced with the virus.

Taking all the evidence into consideration, it is probably safe to assert that in postvaccination tetanus the infection occurs subse-

quent to the vaccination and through the small wound produced in the process. The practical lesson to be drawn from this, and it cannot be too forcibly emphasized, is that vaccination must be considered a surgical procedure, and performed as such with all proper methods of cleanliness, as well as after care of the wound. If these precautions were observed, doubtless we should hear little of tetanus following vaccination.

MATHEMATICS AND DIGESTION

The researches of Pawlow and his pupils have clearly demonstrated the obedience of the digestive processes to mathematical laws. Thus, it has been ascertained that the time of digestion is, roughly speaking, proportional to the square root of the quantity of food, and that the same is true of the amount of gastric juice secreted in a given time. Professor Svante Arrhenius, in his recent lecture at the Royal Institution on "The Identity of Laws in General and Biological Chemistry," pointed out that, just as in reactions in general chemistry, the velocity of the reaction increased with the temperature, so also is this the case with organic products and vital processes, the action of enzymes being accelerated by increase of temperature up to certain limits. It might be helpful to diners out if a digestive time table of the various articles of food were amended to the menus, or, better still, indicated in special type after each dish. Such a "psychological restaurant" might pay well if established within easy distance of Harley Street.—*Med. Press*, June, 1914.

STERILIZATION OF INSTRUMENTS

The best way of sterilizing instruments is to boil them in slightly alkaline water. This prevents their rusting. A little bicarbonate or carbonate of either potassium or sodium will answer the purpose.

DIGEST OF CURRENT MEDICAL LITERATURE

Internal Use of Liquid Paraffin.—A. Manquat, *Paris Medical*, April 25, 1914, asserts that liquid paraffin or petrolatum intended for internal use should possess neither the taste nor odor of petroleum, should not exhibit marked fluorescence, and should be neutral in reaction. Its viscosity should be that of simple syrup and its specific gravity about 0.875. Too thick an oil is not desirable, as it fails to permeate the fecal material, this being an even more important effect than lubrication of the intestinal wall. The preparation used, when heated to its boiling point, must give off no acrid odor, and when heated on a water bath with an equal weight of sulphuric acid should not darken the latter. Few specimens of liquid petrolatum satisfy these requirements, and Vicario found that impurities obtained by treatment of American oil with sulphuric acid and extraction with chloroform were decidedly toxic to guinea pigs. Manquat has become convinced that liquid paraffin is not only useful as a lubricant in the intestine, but as a means of healing superficial lesions in the mucous membrane, especially if it is taken on an empty stomach. The whole large intestine is relieved from the prolonged contact of irritant and septic matter: the oil inhibits bacterial growth, as shown by improved health and appetite, and marked reduction of skatol and related products in the urine, in patients suffering from enterogenous autointoxication. In painful hyperchlorhydria, liquid petrolatum is of distinct value, though not quite as efficient as either bismuth or tepid olive oil. In constipation, lack of success with it is sometimes due to excessive doses. In some patients a tablespoonful taken before breakfast passes through too quickly, and much better results are obtained by giving two teaspoonsful before breakfast, at 11 A. M., and again at 5 P. M., or at bedtime. In tuberculous enteritis, small amounts of a mixture of one part of bismuth subnitrate with four parts of liquid paraffin caused rapid diminution of pain, diarrhea, rigidity and fever. In cases of enteritis without diarrhea, paraffin may be given pure. In cases of hemorrhoids, reduction of the piles is facilitated by its use, and pain and bleeding soon cease. In two cases of lung tuberculosis with intestinal disturbance dietetic treatment, with calcium carbonate and liquid paraffin, caused surprisingly rapid improvement. In affections of the kidneys, heart,

liver and biliary passages, in arteriosclerosis, in psychoneuroses with constipation (melancholia, mania), in migraine, in neurasthenia, in hysteria and even in epilepsy the detoxicating effect of liquid petrolatum in the intestine is likely to prove of value. The oil should not be taken with food, as it may then cause a feeling of weight in the stomach, borborygmi and even intestinal pain. Vicario has shown that in vitro the oil slows the digestion of butter by pancreatic juice.

Activity and Stability of Tincture of Digitalis.—W. Legge Symes, *British Medical Journal*, June 20, 1914, tested fiftyfive tinctures by a modified frog method, immediately and at varying intervals after their manufacture, to determine the extent and rapidity of deterioration. He summarizes his results as: "1. Weak tinctures show little or no change in a year or more. Active tinctures deteriorate much more rapidly. 2. Of those initially within 25 per cent. of standard, all were more than 25 per cent. below standard, after a year's storage. 3. Of those initially more than 25 per cent. above standard, only one half were within 25 per cent. of standard after one year's storage, and these had lost 20 to 70 per cent. of their original activity. 4. In a few samples deterioration was recognizable one month after manufacture." With regard to activity, Symes found that not a single sample could fairly be considered inert, that very few of the fresh samples were initially weak, and that among those not below standard there was a variation in initial activity of 200 to 300 per cent. All the tinctures showed a variable period of constant activity, sometimes lasting nearly a year, after which deterioration set in, and amounted to as much as 7 per cent. in a year. The same remarks seem to hold true for concentrated alcoholic extracts, such as the U. S. P. fluid extract. Solutions of crystalline digitoxin are more stable. Commercial nonalcoholic tinctures, and allied preparations are not trustworthy. Speculating from the recent work by Kraft, Symes thinks it possible that the deterioration may be due to the loss of the water soluble glucosides.

Oxytotic Remedies.—Tassius (*Arch. f. Gynäk., Bd. ci, Hft. 3*) presents the results of a study with various remedies for combating uterine inertia made in a clinic at Breslau during a period of two years in an extended series of cases. The administration of sulphate of quinine afforded very favorable results, especially in cases of abortion where temperature was present. He believes that quinine may be used in the period of dilatation, as well as during that of expulsion, and it is also of value in cases where labor is

induced before term. Pituitrin was found to be a reliable remedy in secondary inertia and the effect increased with the period to which labor had advanced. In the process of abortion it favors the process of dilatation and makes curettage easier. For the induction of premature labor it was found of less value, but during the puerperium, especially for hemorrhage, it was very serviceable. Tassius is convinced, however, that it cannot induce labor pains. Unfavorable influences on either mother or child are relatively rare if care in the administration is observed. Pituglandol was found to be very efficient in secondary inertia, as well as in abortions and the induction of labor, although it is not efficient for the production of the latter. The writer states that it is valuable in eclampsia, placenta previa, uterine hemorrhage, particularly in combination with ergot preparations. Secacornin, an ergot derivative, was not found to be of value during labor or in the treatment of abortions, and the site of injection was likely to be painful. It was particularly applicable, however, to the postpartum period after the delivery of the placenta.

Modern Treatment of Fractures.—M. L. Harris, *Jour. Mich. State Med. Soc.*, 1914, xiii, 355, expresses the opinion that a perfect anatomic reduction in fractures by external manipulation is, in the majority of cases, impossible. Three important rules in treatment of fractures are: (1) Be certain that you are thoroughly familiar with the exact condition. (2) Inform the patient of the condition at all times. (3) Use the röntgen ray.

As to the open treatment of fractures, the fact that the technic is difficult is not a contraindication. It is the author's belief that a perfect functional result is impossible without a perfect anatomic result, and that if the open operative treatment brings greater benefit to the patient, then it should be adopted. Although the technic and materials for internal splints vary, the general principle of fixation by open operation has become definitely and permanently established. The objections to this method are suppuration, pain in the bone, and interference with osteogenesis. Suppuration is almost always due to faulty technic.

The author concludes with the usual warning that only those equipped and thoroughly trained in the special technic of bone surgery should attempt an open operation.

Food Requirements of Infants.—E. Pritchard (*Brit. Jour. Child. Dis.*, 1914, xi, 49) states that no infant, breast fed or artificially fed, can be considered to be in a satisfactory condition unless its

physiological demand for food is of the following approximate standard. An infant three months old and weighing 5 kgm. (11 pounds) should require not less than 690 c.c. (23 ounces) of breast milk, or its equivalent, in the twentyfour hours; an infant six months old and weighing 7.5 kgm. (16½ pounds) should require not less than 900 c.c. (30 ounces); and an infant nine months of age should require not less than 1080 c.c. (36 ounces). If, when taking food in these quantities, there is evidence that there is an excessive intake, steps should be taken to increase the demand for food by a revision of the hygienic management of the child. A demand is created when the appropriate stimuli of air, light and cold are applied. An excessive intake is suggested by an abnormal increase in weight, say of 10 to 14 ounces per week, in a baby a year old if maintained for any prolonged period of time, dilatation of the capillaries of the cheeks, sweating about the head, and unduly rapid respiration rate.

Diphtheria Prophylaxis in Infants.—P. Rohmer, *Berliner Klinische Wochenschrift*, July 20, 1914, measures the dose for infants of the new prophylactic mixture of diphtheria toxin and antitoxin, which von Behring tested on animals. It is possible to give the strongest preparation, TA.VI, to infants without unfavorable reaction. One tenth of one c.c. was chosen as the amount to be injected; in each case dilutions varying from one in twenty to one in five were injected. The dose was increased at each subsequent injection. In all, sixteen children were given the injections, children of a variety of ages, from two and a half months to two and a half years, and of considerable difference in general health. In the infants under four or five months of age the injections failed to increase the antitoxin content of the serum, while in all above this age there was an increase, in some very marked. The agent was injected intracutaneously; the local reactions could be divided into three groups, according to severity. The most marked reactions are specific, the reactions of the first and second order doubtfully so. No harm was caused in any of the children, and the agent is recommended for prophylaxis.

Hereditary Syphilis.—White, *The Journal of the American Medical Assn.*, August 8, 1914, makes the following deductions from a study of 1,694 cases of syphilis: Hereditary syphilis does not tend to show itself cutaneous at birth. Men seem more liable to develop leukoplakia, central symptoms, mucous plaques, alopecia, iritis and pain, while women are

more prone to early and later skin manifestations, pharyngitis, condylomata and headache. Tabes attacks men and women in the ratio of six to one. In 45 per cent. of the cases of tabetics, syphilis was acknowledged or found actively present (Wassermann test not included). Tabes developed in 11 per cent. within five years from the date of infection, and 61 per cent. within fifteen years. Of 500 tabetics, only about 3 per cent. had ever manifested any late cutaneous lesions. Pain was the most early symptom of tabes and the legs were the first part of the body to evince the disease. General paresis occurred in men and women in the ratio of ten to one. The youngest paretic was sixteen years old and the oldest seventysix.: Of 178 paretics, only 1 per cent. had ever suffered from late cutaneous syphilis.

Shock.—Gray, *British Medical Journal*, August 22, 1914, discussing the prevention of shock, urges that the operation be performed as soon as the decision to operate is made. Useless delay in the matter is a potent cause of shock. Instruments must be sharp, and as little handling of tissues as possible should be done. As to the choice of an anesthetic, he favors ether by the open method. Chloroform, he says, is fast becoming obsolete. He urges a local anesthetic in every case where it is feasible, and describes his technic and shows results in a large series of cases in which by blocking the abdominal parietal nerves by local anesthetics the pulse rate went down instead of up after operation.

Glands of Internal Secretion.—Holmes, *Lancet-Clinic*, September 19, 1914, states that there is no exact classification of the ductless glands. The thymus is more active in intrauterine life. The thyroid and adrenal glands have an antagonistic action. The thyroid promotes digestion, reproduction, cerebation, cardiac strength and activity; the adrenals restrain all of these. The capillary circulation is constricted by the action of the adrenal and dilated by that of the thyroid. The pineal gland is closely related to the growth and maturity of the sexual apparatus; the pituitary body has influence on bone growth, and the adrenals seem in some way related to the cerebrospinal lymph circulation.

Cause of Blindness.—Harmon, *British Medical Association*, August 29, 1914, analyzes 1,100 cases of blindness, and presents in tabular form the causes of this condition. Of these 1,100 children, the cause of blindness in 24 per cent. was ophthalmia neonatorum,

and in 31.2 per cent. congenital syphilis. The cause of the increased proportion of these cases, due to syphilis during recent years, is due to a certain extent to increased knowledge of the disease and newer methods of diagnosis.

Curable Tabes.—Grandclement, *Lyon Medical*, April 26, 1914, asserts that tabes dorsalis appearing before the age of forty years and only about ten years after the initial infections can frequently be cured by energetic mercurial treatment.

Acute Thyroiditis as a Complication of Acute Tonsillitis.—C. F. Theisen, *Surg. Gynec. & Obst.* The author reports the histories of seven cases in which acute nonsuppurative thyroiditis developed in a previously healthy gland of normal size either during, or indirectly following, an attack of tonsillitis.

The acute condition subsided under treatment in about ten days, but two cases after repeated acute attacks developed well marked goiter, and two cases developed hyperthyroidism.

A study of the literature shows that simple thyroiditis which runs its course without suppuration is a rare disease, and a primary acute inflammation of the thyroid gland is so rare that it is almost never seen, only thirteen cases having been reported.

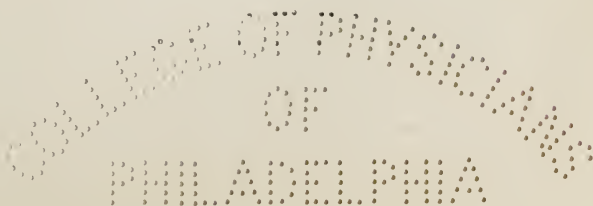
Use of Extract of Hypophysis in Obstetrics.—G. Bertoloni, *Fol. gynec.*, 1914, ix, 147, after a discussion of the literature, reports his own results in 43 cases. He used extract of hypophysis made by different firms in cases of abortion, premature delivery, contracted pelvis, placenta previa, atony in the first and second stages, postpartum atony, as a prophylactic in overdistention of the uterus, and in intrapartum hemorrhage. He had different complications, such as spasm of the cervix, dangerous tetanic contractions, once even fatal asphyxia of the fetus and severe hemorrhage in the third stage; in other cases the remedy failed or the results were so unsatisfactory that operative measures could not be avoided. In cases of atony, and sometimes in other cases also, there was a good effect, and in one case the use of forceps was avoided. He has no great enthusiasm for the remedy and thinks that as it is rather dangerous it should not be placed in the hands of inexperienced practitioners and midwives.

THERAPEUTIC PROGRESS

Lipiodin-Ciba.—Schmid, *Münchener Medizinische Wochenschrift*, July 14, 1914, uses lipiodin-Ciba in the forms of pills of five grains each, given three times daily, best after meals, in all cases that require iodine. This is the trade name for the ethyl ester of a double iodic fatty acid and contains forty one per cent. iodine. The iodine is not dissociated too quickly as with compounds of iodine and the alkalis and combinations of iodine and albumin. On the other hand, it is not dissociated too slowly, as is the case with iodipin and sajodin. Iodine is stored up in the system more quickly than when other preparations are used and elimination takes place over a longer period of time. Further, it has the advantage of having a pleasant, slightly sweet taste, which causes it to be preferred in cases where iodine has to be given over a long period of time. The salty, bitter taste complained of when other preparations of iodine are taken has never been observed. Iodism has never been seen. The therapeutic effects seen in cardiac cases, in which it is most used, are a dropping of blood pressure and disappearance of headache and vertigo. It has also been used with benefit in the treatment of asthma, articular rheumatism (after the salicylates have failed), headaches having a metasyphilitic basis, psoriasis and hypertrophied prostate.

Veratrone in Eclampsia.—F. W. N. Haultain, *British Medical Journal*, September 26, 1914, reports five cases to illustrate the value of this preparation of veratrum. In eclampsia an elevated blood pressure, while not primarily the cause of convulsions, increases their probability. The injection of one c.c. of veratrone commonly reduced blood pressure; in almost every instance the fits ceased. This depressant action was only temporary, lasting for a few hours, but was associated with a reduction in the pulse rate and marked diuresis and diaphoresis. Vomiting occurred in some instances. In animals it was found that the drug also lowered blood pressure and slowed respiration; these effects were not produced after section of the vagi. Both epinephrine and pituitary constrict the arterioles after veratrone has lowered blood pressure. The conclusion is that veratrone stimulates the afferent vagus fibres and produces its effects reflexly through the vasomotor centre. Haultain believes that it constitutes to a certain extent an antidote to the eclamptic poison. After rise of blood pressure following a dose of veratrone, the fits seldom recur. Eclamptics stand large doses with manifestations of but mild symptoms, while noneclamptics are made desperately ill by similar doses.

Neosalvarsan.—W. J. McGurn, *Boston Medical and Surgical Journal*, October 1, 1914, is convinced that when accurately handled neosalvarsan is both safe and dependable; that in preparing and administering this agent, a cool room with perfect illumination is of equal importance with strict asepsis; that the beginning of oxidation of neosalvarsan is simultaneous with its exposure to air; that immediate injection should be interpreted as forbidding a delay of more than ten minutes from the time of opening the ampoule until the injection is completed, which time can easily be reduced by half; and that the use of therapeutic agents containing ammonium car-



bonate or mercury should be suspended for a period of forty eight hours preceding and for several days following the intravenous administration of either new or old salvarsan.

Aspirin in Treatment of Asthma.—Jepsin, *Ugeskrift for Laeger*, Christiania, August 20, LXXVI, No. 34, pp. 1449-1494, has suffered from asthma himself and has found great relief from acetyl-salicylic acid, as also a number of patients, which he describes in detail. The dose was 1 gm., and it always helped at once and has served to ward off impending attacks. Some of his patients have been thus taking it for two years, one for three. In some other cases no benefit was apparent from it and only epinephrin gave relief. All had a vasomotor rhinitis, which suggests that reflex action from the nose may be an important factor in asthma. Treatment of the rhinitis is thus an indispensable preliminary to treatment of the asthma. The asthma subsided completely during acute intercurrent diseases in his patients.

Lecutyl in Tuberculosis of the Bladder.—Weiss, *Münchener Medizinische Wochenschrift*, July 14, 1914, reports a cure of a case of tuberculosis of the bladder of several years' duration in which he used lecutyl, a combination of copper and lecithin. It was given in pill form, the dose being two pills three times daily. In addition inunctions with lecutyl salve were given, the dose being one to two grams once daily, followed by rubbing with spirits of camphor. At the conclusion of the treatment one intravenous injection of lecutyl of 0.5 c.c. was given. After two months the patient reported for observation. He had gained two and a half kilograms in weight and felt and looked well. The urine was clear, no blood, albumin nor tubercle bacilli being present.

Urotropin in Acute Affections of the Lungs.—P. I. Michailoff, *Roussky Vrach*, May 10, 1914, obtained very good results from urotropin in the treatment of purulent bronchitis and crupous pneumonia. From his observations on a number of cases he concludes that urotropin is eliminated by the bronchial mucous membrane and acts as an antiseptic, this action being particularly valuable in inflammations of lungs or bronchial tubes associated with purulent expectoration. In pneumonia the administration of urotropin often changes the entire aspect of the case from one of gravity to recovery. The drug should receive wide application in the treatment of diseases of the lungs.

Bactericidal Action of Ethylhydrocuprein on Bacillus Mucosus Ozoenae.—K. K. Vishnevsky, *Roussky Vrach*, June 7, 1914, reports the results of his investigation of the bactericidal properties of ethylhydrocuprein. He found that it kills bacillus ozoenae in dilutions of one in 200. In dilutions of one in 300 to one in 500, it is still bactericidal, depending, however, on the nature of the medium. In dilutions of one in 8,000, it inhibits the growth of the bacillus.

Peristaltin in Laparotomies.—Küster, *Zentralblatt für Gynakologie*, August, 1914, recommends the parenteral administration of peristaltin in laparotomy cases in order to stimulate peristalsis and shorten the post-operative period of paralysis of the bowel. In those cases in which it was used, the period of paralysis was shortened apparently from an average of forty one hours to thirty three.

MISCELLANY

ANTISEPTICS AND GERMICIDES

M. Pitzman, St. Louis (*Journal A. M. A.*, June 27, 1914), says that the idea that moist or germicidal dressings over an infected wound have any influence on the course of the infection within the wound is being given up, and the progressive surgical opinion of the day is that moist or saline dressings would have equally good effects, without their disadvantages. One of the most important uses of germicides is their prophylactic use on mucous membranes that have been exposed to infection where, theoretically, the germs are still on the surface and can be reached. For this purpose he favors the use of strong germicides, and condemns the weaker antiseptics. This prophylaxis is used in infantile ophthalmia, and is gaining in estimation for use after exposure to venereal infections. Still another use is by the ophthalmologist in infections of the cornea, which is comparable to bony tissue in its lack of blood supply, etc., for which reason the infection tends to remain localized. In cases of abscess the continuous discharge has itself a healing tendency, and in chronic inflammation of the mucous membrane the bacteria are likewise removed under ordinary conditions without the use of antiseptics. Some irritation is often necessary, not to kill off infecting organisms, but to aid nature by increased blood supply, stimulation, etc. When germicides are thus used, one must keep in mind their possible bad effects. One must recognize the limitations of germicides.

OATMEAL DIET FOR CHILDREN

In investigations made on young animals, Watson, *British Medical Journal*, found that an oatmeal diet in the form of porridge and milk has a remarkable effect on the thyroid gland. Hence, the value of oatmeal in the dietary of young children, for, says Watson, there is no reason to doubt that moderate and physiological use of this food will be followed by a stimulation of the gland to a degree wholly beneficial.

HYSTERO-ANEMIC WITH MORBID APPETITE

(*Cravings for Pregnancy*)

"She can cranch, a sack of small coal, eat you lime and hair, soap, ashes, loam, and has a dainty spice of the green sickness."

—Ben Jonson. "Magnetic Lady," Act I, Sc. i.

BOOK REVIEWS

Infection and Resistance. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By HANS ZINSSER, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York. With a chapter on Colloids and Colloidal Reactions by Professor STEWART W. YOUNG, Department of Chemistry, Stamford University. New York: The Macmillan Company, 1914. Price \$3.50.

This work is timely, for there is no more interesting subject at the present time than Infection and Resistance. Not only are the subjects of very great practical importance, but of great value to all men of science, particularly of medical science. Recent developments have been so rapid that few of us have found it possible to keep pace with them. Professor Zinsser has given us a work of 500 pages, which assuredly covers the field. There are 21 chapters beginning with that of Infection and the Problem of Virulence, followed by Bacterial Poisons, Natural, Acquired and Artificial Immunity, Immunization, Toxin and Antitoxin, Bacterial Properties of the Blood Serum, Cytolysis and Sensitization, Complement and Complement Fixation with Methods of Application, Agglutination, Precipitation, Phagocytosis, Anaphylaxis and the Therapeutic Immunization in Man. An all too brief chapter is devoted to Abderhalden's Protection Ferments and finally a valuable chapter on Colloids by Professor Young of Stamford University of California.

Our author is cautious in determining the value of Vaccine Therapy. He states, on page 349, that "the use of vaccines in the subacute or chronic cases of infection with bacteria in the blood stream may be theoretically justified, and no one can say at the present time whether or not it has therapeutic promise. At any rate, it cannot be absolutely condemned on theoretical grounds." Following he states that "there are none of the acute infectious diseases of specific course in which vaccine treatment after onset seems advisable on theoretic grounds." Stock vaccines are not approved of.

We might cite numerous other points raised by the author, but space will not permit. The work is a valuable contribution to medical literature and will be found well adapted to use as a reference or text book. It is needless to state that the work is handsomely issued.

A Textbook for Midwives. By JOHN S. FAIRBAIRN, M.A., B.M., B.C.L. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.), Obstetric Physician, with charge of Out Patients and in charge of Maternity Ward, St. Thomas's Hospital; Physician and Lecturer to Midwives, General Lying-in Hospital, York Road, S. E.; Examiner to the Central Midwives' Board, etc. With 3 Plates and 104 Illustrations, 5 in Color. Oxford University Press, American Branch, 35 West 32d Street, New York, 1914.

We assume that this work will meet with speedy recognition in this country as it is the most ambitious work written for midwives which has come to our desk or of which we have any knowledge.

An admirable feature of this work is the aim of the author to make plain in a semitechnical language the importance of the principles of anatomy and physiology. With this foundation work made clear, the management of labor becomes easily comprehensible to the woman of education and intelligence. Every phase of the subject is treated from the development of the fetus through normal labor, the mechanism of labor, normal and abnormal, care of the infant, hygiene and disinfection.

The work should become a textbook wherever midwifery is taught besides finding a place in training schools for nurses.

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